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Military Operation
FUTURE OPERATIONAL CAPABILITY

Summary. Future Operational Capability (FOC) replaces TRADOC Pamphlet 525-66, Operational Capability Requirements (OCR). FOCs compile and summarize the desired future operational capabilities described in TRADOC approved concepts. FOCs serves as the basis for the TRADOC requirements determination process, to include conducting studies and experimentation, and they provide focus for the Army Science and Technology Programs.

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*** This pamphlet supersedes TRADOC Pam 525-66, December 1995.**

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Glossary

Chapter 1 **Introduction**

1-1. Purpose.

This pamphlet describes the FOC requirements generated by the Army's combat developers.

1-2. References.

Appendix A contains the required and related publications.

1-3. Explanation of abbreviations and terms.

Abbreviations and special terms used in this pamphlet are explained in the glossary.

1-4. Future Operational Capability (FOC) Process.

a. FOCs are statements of operational capabilities required by the Army to develop the warfighting concepts (TRADOC Pam 525 series) approved by Commander, TRADOC. FOCs address specific warfighting capabilities not functions or operations. They describe those capabilities in operational terms, what must be done; not how to do it. The FOCs provide a stand alone description of the capability. FOCs are enduring; they apply to tomorrow's Army, but may be equally relevant to today's or yesterday's Army.

b. FOCs do not describe a deficiency or shortcoming. They do not provide or identify a system specification, specific technology, organization or time frame and they do not encompass an entire branch or functional concept. FOCs do not use relational or comparative words or phrases.

c. Applications

(1) FOCs articulate required and desired capabilities which form the basis for determining warfighting requirements in doctrine, training, leader development, organizations, materiel or soldier support (DTLOMS) systems. FOCs will form the basis for conducting experimentation to define and refine requirements. FOCs state desired capabilities across the full dimension of operations.

(2) FOCs are used to focus organizational and functional structure changes through the Force Design Update process as the Army changes its organization to meet national military strategy guidance.

(3) FOCs are employed in the TRADOC S&T reviews as the yardstick for assessing the relevance of individual science and technology efforts. FOC's guide the Army's S&T investment.

(4) Materiel developers and industry use FOCs as a reference to guide independent research and developments and to facilitate horizontal technology integration (HTI).

(5) Perceptions of shortfalls derived from S&T reviews generate dialogue with the materiel developers to confirm or resolve the perceived shortfalls. Confirmed shortfalls are to be considered in budgetary, planning, and programming reviews by the materiel developer. Shortfalls which exceed Army resource capabilities can be identified to industry to permit discretionary industry investments in needed areas.

(6) FOCs are used within the Army Science and Technology Master Plan (ASTMP) process to provide a warfighting focus to technology base funding.

(7) FOCs are employed in the Army Science and Technology Objectives (STO) process as the measure of warfighting merit. Candidate efforts selected as Army STOs within this process are published in the Army Science and Technology Master Plan as the most important S&T objectives for the Army Research and Development (R&D) community. The STO review provides the basis for the construct of Advanced Technology Demonstrations (ATD). Army STOs receive senior Army leadership oversight and have priority for resourcing.

(8) ATDs address selected high priority FOCs and demonstrate a capability that does not currently exist. ATDs are resource intensive and provide the medium to conduct troop interaction with mature technologies. The ATD demonstration plan is jointly developed between TRADOC and the materiel developer with exit criteria established to execute the ATD. ATD management plans are briefed to a council of colonels and approved at the Army Science and Technology Workgroup (ASTWG).

(9) FOCs are used as a yardstick to assess the relevance of Advanced Concepts and Technology II (ACT II) broad agency announcement topics, and industry proposals to address these topics. The government determines which proposals will be funded. The government determines whether the technology offers a useful capability and if so how best to exploit it.

(10) All warfighting requirements must have linkage through an FOC to an approved branch, operational or functional concept supporting the overarching concept and the TRADOC Commander's vision.

d. FOC Reviews.

(1) FOCs may be updated at anytime given identification of new needs or opportunities for new capabilities.

(2) At a minimum, TRADOC Pam 525-66 will be reviewed, updated, and published annually.

(3) The elements to be reviewed and considered for updating the FOCs include:

(a) TRADOC approved concepts.

(b) Operational Lessons Learned, including Center for Army Lessons Learned (CALL) documents.

(c) CINC Integrated Priority Lists (IPL).

(d) Opportunities from technology. TRADOC proponents will accrue awareness of opportunities from interaction with the S&T community throughout the course of the year. The intent of TRADOC proponents interaction with technology should focus on understanding the potential battlefield capability benefits. In many cases, it will be the TRADOC proponent personnel's operational knowledge of warfighting which may see applications otherwise unforeseen by the materiel developers.

(e) It is incumbent upon both the combat developer and materiel developer personnel to generate ideas of potential capability from the nexus of technology opportunity and warfighting operational concepts.

e. Annual FOC Review Cycle. The following cycle is recommended.

(1) Year Round: Combat Developers accumulate inputs for FOC updates from sources listed above.

(2) Fall/Winter: Conduct internal FOC review.

(3) June: Combat Developers publish draft update of FOCs and submit to Battle Lab Integration, Technology, and Concepts Directorate (BLITCD). BLITCD will disseminate draft FOCs to the other combat and materiel developers to solicit comments and additional information. Combat developers will review the draft FOC submissions for validity, overlap, duplication, omission, and potential for integration.

(4) July: Combat developers publish revised updated FOCs incorporating appropriate field input.

(5) July: HQ TRADOC, BLITCD conduct FOC integration workshop to exchange information and consolidate similar FOCs as may be appropriate.

(6) August: HQ TRADOC task TRADOC Schools and Battle Labs to review FOCs for Commandant concurrence/comments.

(7) September: HQ TRADOC BLITCD consolidate input from the combat developers.

(8) October: HQ TRADOC submit final draft FOCs to CG TRADOC for approval.

(9) November: Approved TRADOC Pam 525-66, Future Operational Capabilities published, distributed, and submitted as input to ASTMP.

(10) November - May: Application of FOCs to TRADOC S&T Review, Army STO Review Process, ACT II Broad Agency Announcements, Concept Experimentation Program (CEP) and Battle Lab interactions with industry.

f. FOC Format: The combat developers will prepare FOCs for submission and inclusion into TRADOC Pam 525-66. FOCs will be formatted as outlined below. The four components of an FOC are: identifier, title, description, and reference.

(1) Identifier -- All FOCs will utilize an identifier that will consist of the combat developer's designator, a two-digit year of development and the three-digit sequential numeric capability designator, (i.e. Battle Command (Gordon) - BCG 97-001).

(2) Title -- The title of the FOC will describe a prevailing capability (e.g., Missile Warning, Medical Evacuation, Logistics Survivability) required to implement the warfighting concept from which it was derived.

(3) Description -- The description will state a required capability in **operational** terms (Capability to...) The FOC will state what capability is needed, why the capability is needed and the benefits expected from achieving this

capability. The FOC will be a prevailing operational capability. Prevailing operational capabilities are those relevant capabilities that have endured over time and will still be relevant in the foreseeable future (e.g., Logistics Support Battlefield Visualization, Direct/Indirect Fires, Battlefield Communications). **The FOC will not identify a solution to the desired capability.**

(4) Reference -- The Combat Developer will reference the concept document (525 series) from which the FOC is derived. This will identify the linkage between the FOC and the specific concept or draft concept (for initial FOC preparation) it was written to support.

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The TRADOC integrated FOC are those FOCs that apply to more than one TRADOC proponent. They are integrated to provide the materiel developer with a sense of what common capabilities are needed across the force as a whole. The FOCs will be reviewed and updated annually.

2-1. Command and Control.

1. TR 97-001. Command and Control.

Branch FOC. AD 97-004; AR 97-006, AR 97-007, AR 97-014; AV 97-011, AV 97-012; BCL 97-002, BCL 97-004, BCL 97-005, BCL 97-006, BCL 97-008; CM 97-001, CM 97-004, CM 97-008; EEL 97-024 EEL 97-025; EN 97-005, EN 97-006; FA 97-006, FA 97-009, FA 97-010, FA 97-013, FA 97-015, FA 97-024, FA 97-035, FA 97-036; DSA 97-007, DSA 97-016, DSA 97-017, DSA 97-022, DSA 97-025, DSA 97-027; IN 97-500, IN 97-510, IN 97-520, IN 97-530; MD 97-002; MI 97-005; MMB 97-017; MSB 97-003; MP 97-003; SP 97-001, SP 97-002, SP 97-003, SP 97-004, SP 97-006, SP 97-007, SP 97-009, SP 97-010, SP 97-011, SP 97-013, SP 97-014, SP 97-015, SP 97-016, SP 97-017, SP 97-019, SP 97-020.

Description: Capability for commanders to have the freedom of moving around the battlespace to locations where they can best influence the battle at the critical time and place. Capability to link all battlespace elements from the individual soldier through the national command authority in real time. Capability to electronically partition data and hand-off relevant data to the appropriate user. Capability to continuously plan, communicate intent, issue orders, monitor and coordinate operations including joint and coalition operations. Capability must support battle command functions wherever the commander is located. Capability must be small, light weight, transportable, multimedia capable, and facilitate rapid movement and emplacement. Capability must be mobile and transportable yet ensure that designs and human engineering are adequate to house and support battle command personnel and systems for continuous operations (i.e., adequate space, power, and internal communications).

References: TRADOC Pam 525-5; TRADOC Pam 525-70; TRADOC Pam 525-75; TRADOC Black Book No. 4.

2. TR 97-002. Situational Awareness.

Branch FOC. AD 97-004; AR 97-006; AV 97-002, AV 97-004, AV 97-011, AV 97-012; BCL 97-004; CH 97-008; CM 97-001, CM 97-002, CM 97-008, CM 97-009; DBS 97-065; DSA 97-004, DSA 97-005, DSA 97-006, DSA 97-007, DSA 97-008, DSA 97-009, DSA 97-010, DSA 97-011, DSA 97-012, DSA 97-013, DSA 97-014, DSA 97-015, DSA 97-016, DSA 97-020, DSA 97-021, DSA 97-022, DSA 97-025; EN 97-003, EN 97-004, EN 97-006, EN 97-007, EN 97-009, EN 97-011; EEL 97-011; FA 97-005, FA 97-006, FA 97-007, FA 97-008, FA 97-009, FA 97-010, FA 97-013, FA 97-020, FA 97-022, FA 97-023, FA 97-024, FA 97-035, FA 97-036; IS 97-001, IS 97-002, IS 97-003; MD 97-001, MD 97-002, MD 97-005; MMB 97-018, MMB 97-019; BCL 97-001; MI 97-005, 6; MMB 97-012, MMB 97-017; MSB 97-003, MSB 97-004, MSB 97-007; MP 97-006, MP 97-007; MSB 97-012, MSB 97-014; SP 97-001, SP 97-002, SP 97-003, SP 97-004, SP 97-006, SP 97-007, SP 97-009, SP 97-011, SP 97-012, SP 97-013, SP 97-015, SP 97-016, SP 97-017, SP 97-020.

Description: Capability to create an accurate and high fidelity, all weather, common collaborative real time picture of the battlespace to include weather, terrain, environment, and friendly/ enemy/neutral/ non-combatant situational and status information. The common picture must be continuous and selectable from the common air, stationary, or on the move ground platforms, air defense, naval, space, and wargaming sources depending on the needs of the viewer. The common picture provides understanding of available information in terms of the battlespace: width, depth, height, position, time, terrain, materiel, weather, obstacles and barriers, early warning of NBC/TBM hazards, electro-magnetic, and human. The relevant common picture must be scaleable to appropriate levels of command, tailorable by function and personal preference, and based on variable user defined parameters. To effectively utilize the common picture at various echelons, there must be a capability to electronically partition data and to hand-off relevant data to the appropriate user. The common picture must be based on standardized decision oriented graphics. These standardized graphics must be shared with and include joint and coalition forces, and must be portrayed over a common, relevant, tailored, and accurate terrain picture. Achievement of this capability is key to battlefield visualization by conveying to the warfighter an immediate understanding of the operational impact of the current and projected situation and provide predictive information, impacting enhanced survivability, facilitating synchronization of fires, maneuver, and

logistics/personnel supportability and accountability in order to achieve maneuver dominance and influence battle tempo.

References: TRADOC Pam 525-5; TRADOC Pam 525-70; TRADOC Pam 525-71; TRADOC Pam 525-75; TRADOC Black Book No. 4.

3. TR 97-003. Mission Planning and Rehearsal.

Branch FOC. AD 97-005; AR 97-013; AV 97-003; BCL 97-001, BCL 97-003, BCL 97-010, BCL 97-016, BCL 97-017, BCL 97-019, BCL 97-020; CH 97-011; CM 97-001, CM 97-008; DSA 97-001, DSA 97-002, DSA 97-007, DSA 97-013, DSA 97-014, DSA 97-022, DSA 97-027; EEL 97-021, EEL 97-022; EN 97-003, EN 97-004, EN 97-005, EN 97-006, EN 97-007, EN 97-008, EN 97-009, EN 97-010, EN 97-011, EN 97-016, EN 97-017, EN 97-018, EN 97-030; FA 97-007, FA 97-008, FA 97-009, FA 97-015, FA 97-023, FA 97-035, FA 97-036; IN 97-520, IN 97-700; MSB 97-003, MSB 97-007, MSB 97-012, MSB 97-014; MI 97-001, MI 97-002; MP 97-003, OD 97-003; MMB 97-018, MMB 97-20; SP 97-001, SP 97-002, SP 97-003, SP 97-004, SP 97-005, SP 97-007, SP 97-010, SP 97-011, SP 97-014, SP 97-015, SP 97-016, SP 97-017, SP 97-020; TRD 96-002, TRD 96-004, TRD 96-005, TRD 96-006, TRD 96-012.

Description: Capability of the warfighter to conduct rapid mission planning, preparation, and execution. Decision making and operations planning requires knowledge based capabilities and decision aids, to improve quality and reduce decision making time. Decision making must take advantage of real time information available on seamless information networks to plan and rehearse operations. Embedded training and simulation tools must be incorporated into decision support software for training, mission rehearsal, and other tasks that are critical either because of the complexity of the task or the time sensitivity of the results. Capability must operate on the move and under all conditions. Decision aids are required to facilitate in-depth, timely analysis of information, forecasting and support "wargaming" efforts.

References: TRADOC Pam 525-5; TRADOC Pam 525-60; TRADOC Pam 525-70, TRADOC Pam 525-75; TRADOC Black Book No. 4.

4. TR 97-004. Tactical Operation Center (TOC) Command Post (CP).

Branch FOC. AD 97-006; AR 97-007; AV 97-011; BCL 97-010, BCG 97-001, BCG 97-004, BCG 97-005; CM 97-001; CM 97-004, CM 97-008; DBS 97-050, DBS 97-053; DSA 97-015, DSA 97-019, DSA 97-027; EEL 97-017, EEL 97-021, EEL 97-022, EEL 97-024; FA 97-009, FA 97-012, FA 97-014, FA 97-022, FA 97-025, FA 97-036; MI 97-005, MI 97-006, MI 97-007, MI 97-008; MMB 97-017; SP 97-001, SP 97-002, SP 97-005, SP 97-009, SP 97-010, SP 97-011, SP 97-014, SP 97-015, SP 97-016, SP 97-017, SP 97-018, SP 97-020.

Description: Tactical Operation Center (TOC) and Command Post (CP) facilitate the commander and his staffs with capabilities to maintain situational awareness and to control/dominate the battle space/mission tempo. Provides deployable, transportable, modular, reconfigurable, highly survivable, and highly mobile command posts which function equally well when stationary, enroute, or on-the-move, in all environments to include battlefield clutter. Must support simultaneous operation of diverse information systems and be quickly reconfigurable to support various combinations of automated systems and staff functions, to include mission planning, rehearsal, and execution, ensuring maximized signature reduction. Facilitates real time, robust, long range, seamless connectivity to all space, air, ground, surface and submersible information systems and sub systems as applicable to mission requirements. Provides commander and staff with the ability to perform command and control from remote sites.

Reference: TRADOC Pam 525-75.

5. TR 97-005. Airspace Management.

Branch FOC. AD 97-004, AD 97-006; AV 97-001, AV 97-003, AV 97-012; DSA 97-015; FA 97-010; MD 97-001.

Description: Capability to effectively manage, in real time, multiple users of airspace thus minimizing conflicts and maximizing the overall successful mission accomplishment rate. This requires close integration between command and control, Army Airspace Command and Control, Army aviation, air defense, artillery, military intelligence, aero-medical support, special operations, airborne and infantry operations, mounted ground operations, sister service and coalition members operations, and possibly civilian airspace management agencies. Also requires communication and automation capability that is compatible with these organizations and that is compliant with the Army Battle Command System/ Common Operating Environment equipment and with required standards. The system must be capable of rapid deployment, must be operational while mobile, and must maintain flexibility in response to an ever-changing operational situation. The system must have a real time air picture and real time communications with all airspace-user elements. The system must be able to electronically translate raw airspace data into a useable three-dimensional fused

real time airspace picture and direct two-way interface into the Contingency Theater Automated Planning System for Army airspace users requiring near real time deconfliction or situational awareness of air assets. In addition to analog and digital communication, the system should support an automated capability to collect, display, and disseminate airspace control measures to all airspace users. Data communication must interface with and facilitate sensor to shooter linkage systems for AD and FA platforms. The airspace management system must comply with Federal Aviation Administration requirements for peacetime United States operations, and be compatible with all other airspace command and control systems, including existing joint, multinational and host nation airspace management requirements during joint or coalition exercises outside the United States.

References: TRADOC Pam 525-5; TRADOC Pam 525-72; TRADOC Black Book No. 4.

6. TR 97-006. Combat Identification.

Branch FOC. AD 97-006; AR 97-004, AR 97-010; AV 97-005; DSA 97-005, DSA 97-010, DSA 97-011, DSA 97-021, DSA 97-024, DSA 97-025, DSA 97-028; FA 97-004, FA 97-013; MI 97-003; MP 97-006; MMB 97-015; SP 97-001, SP 97-002, SP 97-003, SP 97-009, SP 97-010, SP 97-011, SP 97-014, SP 97-015, SP 97-016, SP 97-017, SP 97-020.

Description: Capability to detect, discriminate, identify through active, non-cooperative methods, and prioritize both ground and aerial platforms at ranges in excess of the threat's detection and weapon systems effective ranges and inside the threat's detection and response time. The capability must be effective day or night in adverse weather, in cluttered background environments, and in the presence of threat countermeasures. The capability must provide real time, accurate target location information.

References: TRADOC Pam 525-5; TRADOC Pam 525-75.

2-2. Communication.

7. TR 97-007. Battlefield Information Passage.

Branch FOC. AD 97-004, AD 97-006, AD 97-011; AR 97-001, AR 97-003, AR 97-004, AR 97-006, AR 97-007, AR 97-010, AR 97-012; AV 97-001, AV 97-003, AV 97-011, AV 97-012; BCG 97-001, BCG 97-002, BCG 97-003, BCG 97-005, BCG 97-006, BCG 97-007; BCL 97-002, BCL 97-004, BCL 97-005, BCL 97-007; CH 97-001, CH 97-002, CH 97-004, CH 97-005, CH 97-008, CH 97-011; CS 97-004; CM 97-001, CM 97-002, CM 97-008, CM 97-009; DSA 97-07, DSA 97-008, DSA 97-012, DSA 97-014, DSA 97-016, DSA 97-017, DSA 97-021, DSA 97-025; EEL 97-011, EEL 97-017, EEL 97-024, EEL 97-025; EN 97-002, EN 97-005, EN 97-007, EN 97-011, EN 97-018; FA 97-005, FA 97-006, FA 97-007, FA 97-008, FA 97-009, FA 97-010, FA 97-011, FA 97-012, FA 97-013, FA 97-015, FA 97-019, FA 97-021, FA 97-022, FA 97-023, FA 97-024, FA 97-025, FA 97-026, FA 97-029, FA 97-030, FA 97-035, FA 97-036; FI 97-001, FI 97-002, FI 97-003, FI 97-004, FI 97-005, FI 97-006, FI 97-007, FI 97-008; IS 97-001, IS 97-002, IS 97-004, IS 97-005; MD 97-001, MD 97-002, MD 97-003, MD 97-005, MD 97-006, MD 97-008; MI 97-005; MMB 97-017, MMB 97-018, MMB 97-019; MP 97-003, MP 97-004; MSB 97-003; SP 97-001.

Description: Capability for a highly employable seamless, secure, global information architecture that is dynamic, self-organizing, self-healing, which is modular, and is reconfigurable for use by airborne, light, and heavy forces. This architecture will provide a capability for total, uninterrupted, interoperable data networking of secure and non-secure data, voice, imagery, and video transfer in real time, near-real time, and non-real time between government, non-government, and military health services systems assets agencies; combined arms; tactical and strategic forces; and joint, combined, and coalition forces throughout the battlespace from the National Command Authority to operator level. Included are information transfer over all phases (alert to re-deploy), ranges (contingency operations to high intensity conflict), and levels (tactical, operational, and strategic) of operations with acceptable levels of throughput, capacity, information quality, grade of service, security, and precedence in austere environments with minimum sustainment requirements. Also included is the ability to track data lineage, and synchronize data updates from multiple sources. The architecture will be compatible with the joint technical architecture and common operating environment.

References: TRADOC Pam 525-71; TRADOC Pam 525-75.

8. TR 97-008. Power Projection and Sustaining Base (PPSB) Operations.

Branch FOC. AD 97-004; BCG 97-001, BCG 97-006; BCL 97-009; CH 97-011; CM 97-004; CS 97-004; DSA 97-008, DSA 97-016; EEL 97-014, EEL 97-017; EN 97-002, EN 97-005; FA 97-011, FA 97-019, FA 97-021, FA 97-025, FA 97-026; FI 97-001, FI 97-002, FI 97-007, FI 97-008; IS 97-001, IS 97-002, IS 97-003, IS 97-004, IS 97-005; MD 97-002; MP 97-004; SP 97-001, SP 97-002, SB 97-003, SP 97-005, SP 97-006, SP 97-007, SP 97-008, SP

97-009, SP 97-010, SP 97-011, SP 97-012, SP 97-013, SP 97-014, SP 97-015, SP 97-016, SP 97-017, SP 97-018, SP 97-019.

Description: Capability to support future operations with selected elements that have not deployed from homestation, or operate strictly out of a rear base or sanctuary areas. Capability to support split-based/ force projection operations that must be deployable, robust, assured, and provide a seamless state-of-the-art C4I across the operational continuum (including joint and combined forces) on a continuous basis. Capability to transfer information within the architecture without requiring specific knowledge of the mechanism or platform characteristics that make up the automatic systems and communications. For example, the warfighter will have the capability to use the same telephone and computer in garrison and in any tactical environment. Capability to provide standardized access for deployed forces to strategic infrastructure services such as DISN, NIPRNET, and SIPRNET.

Reference: Terrain Visualization Master Plan.

9. TR 97-009. Communications Transport Systems.

Branch FOC. AR 97-004, AR 97-006, AR 97-007, AR 97-012, AR 97-013, AR 97-014; AV 97-001, AV 97-011, AV 97-012; BCG 97-001, BCG 97-002, BCG 97-005, BCG 97-007; CH 97-001, CH 97-003, CH 97-008; CM 97-001, CM 97-002, CM 97-008, CM 97-009; CS 97-004; DSA 97-007, DSA 97-008, DSA 97-012, DSA 97-014, DSA 97-016, DSA 97-017, DSA 97-021, DSA 97-025; EEL 97-024, EEL 97-025; EN 97-002, EN 97-005; FA 97-023, FA 97-024, FA 97-029, FA 97-030, FA 97-036; FI 97-001, FI 97-002, FI 97-004, FI 97-007, FI 97-008; IS 97-001, IS 97-002, IS 97-003, IS 97-004, IS 97-005; MD 97-001, MD 97-002, MD 97-003, MD 97-005, MD 97-006, MD 97-008; MI 97-005; MMB 97-017; MP 97-015; MP 97-004; SP 97-001, SP 97-005, SP 97-006, SP 97-007, SP 97-009, SP 97-010, SP 97-012, SP 97-017, SP 97-019.

Description: Capability for a combination of communications transport systems that provide high capacity and throughput to efficiently and effectively support simultaneous real time voice, data, imagery, video transfer, video conference, and personal communication services at all levels of security. These systems must be integrated into the global, seamless communications architecture.

References: FM 100-6; TRADOC Pam 525-75, paragraphs 3-3d, paragraphs 4-5d.

10. TR 97-010. Tactical Communications.

Branch FOC. AD 97-004, AD 97-006; AR 97-001, AR 97-002, AR 97-003, AR 97-004, AR 97-006, AR 97-07, AR 97-012, AR 97-013, AR 97-014; AV 97-001, AV 97-011, AV 97-012; BCG 97-001, BCG 97-002, BCG 97-005, BCG 97-007; BCL 97-002, BCL 97-007; CH 97-008; CM 97-001, CM 97-002, CM 97-008, CM 97-009; CS 97-004; DSA 97-007, DSA 97-008, DSA 97-012, DSA 97-014, DSA 97-016, DSA 97-017, DSA 97-021, DSA 97-025; EEL 97-023, EEL 97-024, EEL 97-025; EN 97-002, EN 97-005; FA 97-005, FA 97-006, FA 97-007, FA 97-008, FA 97-009, FA 97-010, FA 97-012, FA 97-013, FA 97-015, FA 97-019, FA 97-022, FA 97-023, FA 97-024, FA 97-025, FA 97-035, FA 97-036; FI 97-001, FI 97-002, FI 97-008; IS 97-001, IS 97-002, IS 97-003, IS 97-004, IS 97-005; MD 97-002; MI 97-005; MMB 97-017; MP 97-004; MSB 97-003; SP 97-001, SP 97-002, SP 97-003, SP 97-004, SP 97-005, SP 97-006, SP 97-007, SP 97-008, SP 97-009, SP 97-010, SP 97-011, SP 97-012, SP 97-013, SP 97-014, SP 97-015, SP 97-016, SP 97-017, SP 97-018.

Description: Capability to extend simultaneous data, voice, image, and video transfer systems to the soldier/platform with acceptable levels of throughput, range, capacity, information quality, grade of service, security, and precedence in real or near real time. These systems will be multi-channelled and will be interoperable with joint, combined, and coalition forces and provide a broad array and distribution in austere environments. Also required is a capability to provide uninterrupted, continual, real time sensor to shooter communication.

References: FM 100-6, TRADOC Pam 525-75.

11. TR 97-011. Information Services.

Branch FOC. AR 97-002, AR 97-003, AR 97-007; AV 97-001, AV 97-011, AV 97-012; BCG 97-001; BCL 97-013; CH 97-002, CH 97-005; CM 97-001, CM 97-002, CM 97-008, CM 97-009; CS 97-004; DSA 97-007, DSA 97-008, DSA 97-012, DSA 97-014; EN 97-002, EN 97-005; FA 97-005, FA 97-022, FA 97-023, FA 97-024, FA 97-036; FI 97-004, FI 97-008; IS 97-001, IS 97-002, IS 97-003, IS 97-004, IS 97-005; MD 97-002; MI 97-004, MI 97-005; MP 97-003; SP 97-006, SP 97-008, SP 97-009.

Description: Capability for seamless global information services that include data warehousing, video teleconferencing, multi-level security, and seamless messaging. Capability to verify data integrity, verify /authenticate

the originator of a transaction, provide proof of participation of both sender and receiver of a transaction, ensure the availability of services to authorized users, and provide an optional data encryption capability.

Reference: TRADOC Pam 525-75.

12. TR 97-012. Information Systems.

Branch FOC. AD 97-004, AD 97-011; AR 97-001, AR 97-002, AR 97-003, AR 97-004, AR 97-006, AR 97-007, AR 97-012, AR 97-013, AR 97-014; AV 97-001, AV 97-011, AV 97-012; BCL 97-001, BCL 97-002, BCL 97-005; CH 97-001, CH 97-002, CH 97-004; CM 97-001, CM 97-002, CM 97-008, CM 97-009; CS 97-004; DSA 97-007, DSA 97-008, DSA 97-012, DSA 97-014, DSA 97-016, DSA 97-017, DSA 97-021, DSA 97-025; EEL 97-023, EEL 97-024, EEL 97-025; EN 97-002, EN 97-003, EN 97-005, EN 97-006, EN 97-007, EN 97-008, EN 97-010, EN 97-011, EN 97-018, EN 97-030; FA 97-005, FA 97-022, FA 97-023, FA 97-024, FA 97-036; FI 97-001, FI 97-002, FI 97-004, FI 97-008; IS 97-001, IS 97-002, IS 97-003, IS 97-004, IS 97-005; MD 97-002; MI 97-005; MP 97-004; MSB 97-014; SP 97-001, SP 97-002, SP 97-003, SP 97-005, SP 97-006, SP 97-007, SP 97-008, SP 97-009, SP 97-010, SP 97-011, SP 97-012, SP 97-013, SP 97-014, SP 97-015, SP 97-016, SP 97-017.

Description: Capability to supply the warfighter with key decision making information in a time sensitive manner, real or near real time . This capability involves acquiring, integrating, and synchronizing information from vertical and horizontal command and control systems; sensor systems; and battlefield functional area systems. This encompasses strategic, operational, tactical, and joint operations. The resulting "system of systems" provides the warfighter with a force multiplier in battle command, common picture, target acquisition, lethality /survivability, logistics, operations planning, and joint interoperability. The information systems must be scaleable, and the platforms capable of hosting multiple information system applications. The information systems must be compatible with the Defense Information Infrastructure (DII) Common Operating Environment (COE).

Reference: TRADOC Pam 525-75.

13. TR 97-013. Network Management.

Branch FOC. AR 97-001, AR 97-002, AR 97-003, AR 97-004, AR 97-006, AR 97-007, AR 97-012, AR 97-013, AR 97-014; AV 97-001, AV 97-011, AV 97-012; BCG 97-003; CS 97-004; DSA 97-008, DSA 97-012, DSA 97-016, DSA 97-017; FA 97-006, FA 97-013, FA 97-025, FA 97-036; FI 97-001, FI 97-002, FI 97-005, FI 97-006, FI 97-007; IS 97-001, IS 97-002, IS 97-003, IS 97-004, IS 97-005; MD 97-002; MI 97-005; MP 97-003, MP 97-004; SP 97-005, SP 97-006, SP 97-007, SP 97-008, SP 97-012, SP 97-017, SP 97-018, SP 97-019.

Description: Capability to maximize the availability of communication networks and data distribution systems to all echelons. This includes the following management functions:

(1) Network Planning and Engineering (NPE) which includes the automated and interactive placement of network resources against subscriber requirements, terrain conditions, tactical restrictions, and communications security requirements;

(2) Battlefield Spectrum Management (BSM) which includes the ability to perform frequency assignments that eliminate adverse collateral effects of co-site and adjacent frequency, and maximizes spectral efficiency and the effective utilization and allocation of bandwidth including bandwidth on demand when appropriate;

(3) Wide Area Network (WAN) Management which is a capability to monitor and maintain communication services including fault, performance, and near real time reconfiguration management; and

(4) Communications Security.

Reference: TRADOC Pam 525-75.

14. TR 97-014. Hands-Free Equipment Operation.

Branch FOC. AD 97-005; AV 97-002, AV 97-004, AV 97-009, AV 97-011; BCG 97-04; BCL 97-003; CH 97-001; DSA 97-022; EEL 97-024; EN 97-009, EN 97-018; FA 97-012.

Description: Capability to operate and control equipment hands-free while stationary or on-the-move. This capability must exist in noisy, unstable, and stressful conditions. These capabilities are required to facilitate operation by minimizing operator interface requirements.

Reference: None.

2-3. Information Management.

15. TR 97-015. Common Terrain Portrayal.

Branch FOC. AR 97-006; AR 97-002, AR 97-013, AR 97-014; AV 97-011; CM 97-001, CM 97-002, CM 97-008, CM 97-009; DBS 97-033; DSA 97-006, DSA 97-020; EEL 97-021, EEL 97-022; EN 97-03, EN 97-030; FA 97-005, FA 97-006, FA 97-023; MI 97-006; MP 97-007; MMB 97-018; MSB 97-007; SP 97-001, SP 97-002, SP 97-004, SP 97-007, SP 97-009, SP 97-010, SP 97-014, SP 97-015, SP 97-016, SP 97-017.

Description: Capability allowing commanders to rapidly and accurately visualize friendly and enemy battlespace conditions and situations, command directives, and other essential information in continuous real or near real time displays, and provide a common background for simulations, training, mission planning, rehearsals, and commander's decision aids. The capability includes the ability to conduct rapid assessments of accessible terrain, line of sight relationships, trafficability, and obstacle planning. The capability provides information as scaleable integrated digital projections, or tactical decision aid products. This capability, when integrated with weather, position location, environmental and situational updates, provides a common portrayal of the physical characteristics of the battlespace. This capability is an essential element of battlefield visualization and the portrayal of synthetic scenes and dynamic environmental effects in simulations.

References: TRADOC Pam 525-5; TRADOC Pam 525-41; TRADOC Pam 525-75; Joint Vision 2010.

16. TR 97-016. Information Analysis.

Branch FOC. AD 97-004; AR 97-006, AR 97-001, AR 97-003, AR 97-004, AR 97-007, AR 97-010, AR 97-011, AR 97-014, AV 97-004, AV 97-012, BCG 97-008, BCL 97-003, BCL 97-004, BCL 97-010, CM 97-001, CM 97-004, CM 97-007, CM 97-008, DSA 97-013, DSA 97-014, DSA 97-020, DSA 97-007, DSA 97-008, DSA 97-012, DSA 97-016, DSA 97-022, DSA 97-025; EN 97-004, EN 97-008, EN 97-010, EN 97-018, EN 97-006, EN 97-007, FA 97-006, FA 97-007, FA 97-009, FA 97-010, FA 97-013, FA 97-022, FA 97-023, FA 97-035, FA 97-036, MI 97-002, MI 97-004, OD 97-003, OD 97-014, MMB 97-019, MMB 97-002, MMB 97-017, MMB 97-018; MSB 97-007, MSB 97-012; MP 97-004; SP 97-001, SP 97-002, SP 97-003, SP 97-004, SP 97-007, SP 97-009, SP 97-010, SP 97-011, SP 97-013, SP 97-0114, SP 97-015, SP 97-016, SP 97-017, SP 97-020; TRD 96-003.

Description: The Army requires the capability for common systems at all echelons to provide rapid analysis, processing, collaboration, understanding, and throughput of information from all sources (air, ground, sea, space) within compressed decision timelines. Fusion and aggregation must occur between bottom-up and top-down feeds. Information must be rapidly retrievable or accessible in an internet, non-hierarchical environment at all echelons by appropriate users requesting the data. High capacity data storage and data retrieval are required to facilitate seamless, real time information exchange across joint, national, coalition forces, and intra/inter vehicular/platform exchange. Require means to tailor information (METT-T) to meet individual needs. Ability to process on-the-move is required thus mandating reduced processor size and weight. Processing capability must be accurate, timely, and enhance operator efficiency. Capability to work at various classification levels (multi-level security) is required. Achieving this capability will permit the processing environment to rapidly and dynamically assimilate information to satisfy multiple battlefield functions.

References: TRADOC Pam 525-5; TRADOC Pam 525-41; TRADOC Pam 525-63; TRADOC Pam 525-70, p. 5; TRADOC Pam 525-72; TRADOC Pam 525-75; TRADOC Pam 525-200-5; TRADOC Black Book No. 4; Joint Venture 2010, p.13; Joint Concept for NBC Defense, A1 paragraph A6, Ordnance Corps Vision paragraph. 3-2f, paragraph 3-2d, e.

17. TR 97-017. Information Display.

Branch FOC. AD 97-004, AD 97-013, AR 97-001, AR 97-002, AR 97-003, AR 97-004, AR 97-006, AR 97-007, AR 97-010, AR 97-011, AR 97-013; AR 97-014; AV 97-012, AV 97-002, AV 97-011; CH 97-003; CM 97-001, CM 97-008; EN 97-003, EN 97-005, EN 97-006, EN 97-007, EN 97-030; MI 97-001, MI 97-005, MI 97-007, MP 97-003, SC 97-006, SP 97-011, BCL 97-001, BCL 97-003, BCL 97-005, BCL 97-008, DSA 97-006, DSA 97-007, DSA 97-008, DSA 97-012, DSA 97-013, DSA 97-014, DSA 97-015, DSA 97-016, DSA 97-020, DSA 97-022, DSA 97-025, DSA 97-027, DSA 97-028, MMB 97-018, MMB 97-019, MSB 97-007, TRD 97-003, TRD 97-008, FA 97-005, FA 97-006, FA 97-007, FA 97-008, FA 97-012, FA 97-013, FA 97-015, FA 97-022, FA 97-023, FA 97-024, FA 97-031, FA 97-035, FA 97-036.

Description: The Army requires a family of displays to access information easily from any location in the battlespace. Display requirements include an integrated family of displays which covers various needs from large screen displays in a homestation, rear area, or command post environment; mobile displays which can be accessed enroute or in moving ground and aerial vehicles; and personal displays used by the individual soldier such as a heads up capability. Each of

these display applications must be adapted to specific information needs and resolution requirements. All displays must be capable of realistic three dimensional portrayal and evolve to incorporation of holograms and full sensory virtual reality presentation. Displays must be fully reconfigurable to suit situational needs and personal preferences without disrupting the underlying information sources. Interactive tools must be incorporated in the display capability. The display hardware and software must be user friendly and minimize operator training requirements. Because the systems will be employed in stressful physical and mental environments, multiple layers of menus should be avoided. Achieving this capability facilitates access to tailored battlefield information from any location either static or on the move.

References: FM 100-13; TRADOC Pam 525-3; TRADOC Pam 525-5; TRADOC Pam 525-41; TRADOC Pam 525-60; TRADOC Pam 525-63; TRADOC Pam 525-70; TRADOC Pam 525-72; TRADOC Pam 525-75; TRADOC Pam 525-200-5; TRADOC Black Book No. 4; Joint Vision 2010.

18. TR 97-018. Relevant Information and Intelligence.

Branch FOC. AD 97-004, AR 97-001, AR 97-003, AR 97-004, AR 97-006, AR 97-007, AR 97-014, AV 97-004, AV 97-012, CM 97-001, CM 97-008, EN 97-008, EN 97-007, FA 97-006, FA 97-007, FA 97-010, FA 97-013, FA 97-022, FA 97-023, FA 97-035, FA 97-036, MI 97-002, MI 97-004, OD 97-003, OD 97-014, BCG 97-008, BCL 97-003, BCL 97-004, BCL 97-010, DSA 97-007, DSA 97-008, DSA 97-012, DSA 97-016, DSA 97-022, DSA 97-025, MMB 97-002, MMB 97-017, MMB 97-018, MSB 97-012; TRD 96-003.

Description: Establish linked processes to collect, process, and provide critical information and intelligence, that supports battlefield visualization, decision-making and information operations - both offensive and defensive. Identify commanders critical information and priority intelligence requirements (CCIR/PIR) to support decisions. Develop essential elements of friendly information (EEFI) and requirements for non-military information. Assess friendly IO/C4I/C2W capabilities and vulnerabilities. Assess adversary IO/C4I/C2W capabilities and vulnerabilities.

References: TRADOC Pam 525-5; TRADOC Pam 525-7; TRADOC Pam 525-20; TRADOC Pam 525-21(R); TRADOC Pam 525-41; TRADOC Pam 525-55; TRADOC Pam 525-60; TRADOC Pam 525-69; TRADOC Pam 525-70; TRADOC Pam 525-71; TRADOC Pam 525-72; TRADOC Pam 525-75; TRADOC Pam 525-100-1; TRADOC Pam 525-200-1.

19. TR 97-019. Command and Control Warfare (C2W).

Branch FOC. AD 97-006, AD 97-008; AR 97-003, AR 97-006, AR 97-007; BCL 97-012, BCL 97-013, BCL 97-014, BCL 97-015, BCG 97-008, CM 97-007; DSA 97-030; EEL 97-007 EEL, 97-009, EEL 97-010; EN 97-010, EN 97-011, EN 97-012, EN 97-013, EN 97-014, EN 97-026; FA 97-027, MI 97-003 MI 97-008, MI 97-009, MSB 97-002, MSB 97-005, MSB 97-008, MSB 97-009, MSB 97-014, MD 97-002; MP 97-003, MP 97-004; SP 97-001, SP 97-003, SP 97-004, SP 97-007, SP 97-009, SP 97-010, SP 97-012, SP 97-014, SP 97-015, SP 97-016, SP 97-017, SP 97-018, SP 97-020.

Description: The Army requires the ability to conduct combined, joint, and coalition operations that enhance and protect the commanders decision cycle and execution while negatively impacting an opponent's ability to operate and make decisions. Information dominance must be achieved through the effective use of intelligence, command and control, C2W operations and supported by available friendly information systems. Information operations must be conducted across the full range of military operations in all battlespace conditions. Information operations encompass the need to protect information, attack information nodes and exploit information sources.

a. Information protection. Information protection requires the capability to reduce the adversary's ability to attack friendly information systems and reduce friendly vulnerability to counter information gathering operations. C4I systems must survive to operate in all weather conditions, on dirty battlefields, and despite enemy disruption efforts. The protection capability must provide: warning of unauthorized penetration and monitoring; facilities protection; a capability to recover from loss of processing capability or loss of data; computer virus detection, protection, and source identification; multi-level security and controls to disguise active signatures and prevent pattern detection. Decoys must simulate sight, sound, thermal, image, and electronic signatures of friendly high-payoff C2 nodes. The capabilities supporting the protection of command and control and decision-making information will also be available to protect non-C2 information systems.

b. Information attack. Information attack requires the capability to destroy, disrupt, deny, deceive, degrade, target, destroy, or neutralize adversary information networks and C2 systems. Options may vary from surgical jamming of the frequency spectrum to intrusion into C2 systems to manipulate data. To effectively conduct information attack, a thorough understanding of the adversary's decision making and C2 process is required. Information attack systems must be multi-function and modular and capable of defeating optics, electro-optics and night vision devices; jamming the

entire frequency spectrum; electronic intrusion and data manipulation without alerting operators of computer compromise; electronic deception; computer attack; and the use of precision munitions to seek out and destroy high-payoff information systems engaged in collection, processing, dissemination, or display of information. Information attack impedes the adversary's decision-making process and potentially lengthens friendly decision-making timelines and windows of opportunity.

c. Information exploitation. Information exploitation requires integrated ground, airborne and space-based multi-disciple collection systems that support situation development. Capability requires the collection of information from an adversary's information age systems such as digital and LPI communications. Tools must exist to allow for analysis of an adversary's C2 system. Distributed all-source analysis and dissemination systems are required to facilitate seamless access to intelligence information at all echelons.

References: TRADOC Pam 525-5; TRADOC Pam 525-75.

20. TR 97-020. Information Collection, Dissemination and Analysis.

Branch FOC. AD 97-004, AD 97-006, AD 97-007, AD 97-011; AR 97-002, AR 97-003, AR 97-004, AR 97-009, AR 97-010, AR 97-011, AV 97-005, AV 97-007, BCG 97-005, BCG 97-007, BCG 97-008, BCL 97-006, BCL 97-007; CH 97-011; CM 97-002, CM 97-009, DBS 97-013, DBS 97-014, DSA 97-002, DSA 97-003, DSA 97-005, DSA 97-008, DSA 97-009, DSA 97-010, DSA 97-011, DSA 97-012, DSA 97-013, DSA 97-014, DSA 97-017, DSA 97-018, DSA 97-021, DSA 97-025, DSA 97-028; EN 97-004, EN 97-005, EN 97-006, EN 97-007, EN 97-009, EN 97-011, EN 97-021; EEL 97-005, EEL 97-007, EEL 97-012, EEL 97-013, EEL 97-015, FA 97-002, FA 97-003, FA 97-007, FA 97-008, FA 97-010, FA 97-013, FA 97-022, FA 97-024, FA 97-029, IN 97-600, IN 97-620, IN 97-621, IN 97-622, IN 97-630, IN 97-640, IN 97-650, IN 97-670; MI 97-003, MI 97-008, MMB 97-001, MMB 97-002, MMB 97-008, MMB 97-007, MMB 97-008, MMB 97-009, MMB 97-010, MMB 97-011, MMB 97-012, MMB 97-013, MMB 97-015, MMB 97-019, MMB 97-020; MSB 97-007, MSB 97-012; MSB 97-014; MP 97-010, MP 97-011; MSB 97-003; SP 97-001, SP 97-002, SP 97-003, SP 97-004, SP 97-009, SP 97-010, SP 97-011, SP 97-012, SP 97-014, SP 97-015, SP 97-016, SP 97-020.

Description: The Army requires collection capability that enables warfighters to see and understand the 360 degree, 3-dimensional, battlespace with the timeliness necessary to shape the battlespace. The collection capability must be an integrated effort between ground, airborne, space-based, manned or unmanned, organic, non military intelligence, joint, national or multinational assets. Sensors must be able to detect, identify, and locate and confirm active and passive targets that are underground, above ground, waterborne, airborne, or in space to support targeting, situation awareness, or force protection requirements.

To support targeting requirements sensors must be capable of: collecting air and missile threats, supporting counter-drug activity, supporting the employment of smart munitions, detecting enemy emitters, detecting missile launchers, detecting chemical and biological facilities, detecting ICBMs/SLBMs, detecting logistics forces, and discerning and attacking targets through the employment of a smart/brilliant munitions.

To support situation awareness requirements sensors must be capable of: detecting "modern" communications signals and non-traditional electromagnetic signals, friendly and enemy data, terrain data, weather data, soil conditions, climatic information, NBC contamination (including physical state and density data), toxic industrial chemicals, natural and manmade obstacles, obscurants (including wavelength and density), battle damage assessment and the presence of mines; collecting information from adversarial data-stores and map adversarial C2 nodes; providing reconnaissance, surveillance, early warning, and indications and warning; and supporting counter-drug activities, police intelligence operations, IFF, and drop-zone intelligence.

To support force protection requirements sensors must be capable of: detecting intrusions in support of area security, supporting airspace deconfliction and IFF, and supporting survivability through the detection of laser employment, muzzle flash, use of millimeter wave or acoustics and radar warning. Information must be collected for all levels of operations regardless of natural or manmade environmental conditions (weather, terrain, obscurants, electronic warfare, cluttered conditions, day/night, etc.). Collection systems must be modular and tailorable with multi-function capabilities and extended ranges. Collectors must be full spectrum, capable of covering wide areas, multi-dimensional, and extremely accurate to enable precision operations and strike. Sensors must operate autonomously in semi-automatic and manual modes, function within short detection timelines, be capable of remote operation, operate in a real time /seamless environment, perform dedicated long-dwell missions, discriminate between conventional and WMD munitions, handle mass attacks, automatically identify targets, employ sensor-to-shooter linkages, operate in both point and area modes, be easily re-programmable and employ modular plug-in capabilities.

Capability is needed to enable a critical, timely, and near-instantaneous dissemination with associated mixed, netted, distributed, and non-dedicated systems from foxhole to national command authority to ensure relevant information is

passed to the enroute commander.

References: TRADOC Pam 525-3; TRADOC Pam 525-5, p.2-7, paragraph 2-2.h.1,2, p.2-9, paragraph 2-3b(2), p.3-2.b.(7), p.3-2.b.(7)(c), p.3-2.d.(6), p.3-6, paragraph 3-2.a.(4), p.6, paragraph 3-2, p.3-7, paragraph 3-2.a.(10), p.3-8, paragraph 3-2.b.(2), paragraph 3-3b(1),(6), paragraph 3-2.b(7)(a),(c), paragraph 3-2.d(6) paragraph 4-1e(2)(f) p.3-9, paragraph 3-2.b, p.3-10, paragraph 3-2.b.(7), 3-2(c), p.3-11 paragraph 3-2.c.2, p.3-20, paragraph 2-3.b.1, paragraph 3-3.c.4, 4-1.b.3, p.4-7, paragraph 4-1.e.(2), p.4-8, paragraph 4-1c, e; TRADOC Pam 525-60; TRADOC Pam 525-63; TRADOC Pam 525-70, p. 4, paragraph 3-3.a, p.5, paragraph 3-3, paragraph 3.3.b.3, p.5-6, paragraph 3-3.a.4, paragraph 3-3.b. TRADOC Pam 525-75, paragraph 3-3b, 3-3f, paragraph 4-5b, and 4-5f; TRADOC Pam 525-200-2 p.5, paragraph 3-3.b, p.6, paragraph A-5.a.(6), p.5, paragraph 3-3.b, p.6, paragraph A-5.a.(4), p.7 paragraph A-5.a.(11), p.7 paragraph A-5.c; TRADOC Pam 525-200-3, TRADOC Pam 525-200-5, p. 6, paragraph 3-7b, and 3-7a, p.8, paragraph 4-4d; TRADOC Black Book No. 4.

21. TR 97-021. Real Time Target Acquisition, Identification and Dissemination.

Branch FOC. AD 97-006; AR 97-004; AV 97-005; DSA 97-009, DSA 97-010, DSA 97-011, DSA 97-014, DSA 97-016, DSA 97-017, DSA 97-021, DSA 97-025, DSA 97-028, DSA 97-030; EEL 97-005, EEL 97-012; FA 97-001, FA 97-002, FA 97-007, FA 97-008, FA 97-013, FA 97-020, FA 97-024, FA 97-029, FA 97-035, FA 97-036; IN 97-660.

Description: The Army requires the capability to conduct continuous, responsive, pro-active, real time ground, air and space-based target acquisition from a moving or stationary platform. Capability to detect, locate, track, identify and classify active and passive targets in all weather, all terrain and all environments at extended ranges throughout the extended, 360 degree, 3-dimensional battlespace. Capability to defeat emerging threat protective systems. Capability to precisely conduct automatic target recognition, battle damage assessment, and moving target indication with zero target location error. Capability to disseminate targeting information throughout the force with a netted, distributed, non-dedicated, integrated, seamless communications network. Capability must be compatible with fratricide prevention measures, operated beyond threat's ability to detect and inside threat's detection and response times.

References: TRADOC Pam 525-5; TRADOC Black Book No. 4.

2-4. Mobility/Countermobility.

22. TR-022. Mobility - Combat Mounted.

Branch FOC. AD 97-002; AV 97-002, AV 97-008, AV 97-009; AR 97-002, AR 97-012; BCL 97-001; CM 97-001, CM 97-002, CM 97-004, CM 97-005, CM 97-008, CM 97-009; DSA 97-007, DSA 97-008, DSA 97-015, DSA 97-019, DSA 97-020, DSA 97-021, DSA 97-025, DSA 97-027; EN 97-003, EN 97-007, EN 97-008, EN 97-009, EN 97-018; FA 97-011, FA 97-021, FA 97-025, FA 97-026; IN 97-300; MMB 97-003, MMB 97-004; MSB 97-001, MSB 97-005, MSB 97-006; MP 97-001, MP 97-005, MP 97-007, MP 97-008, MP 97-013; SP 97-001, SP 97-003, SP 97-004, SP 97-002, SP 97-007, SP 97-009, SP 97-010, SP 97-011, SP 97-013, SP 97-014, SP 97-015, SP 97-016, SP 97-017, SP 97-020.

Description: Capability of combat forces to dominate maneuver and use position advantage to deliver fires in order to destroy the enemy's will to fight. This includes speed, acceleration, in-stride obstacle mitigation, firing on the move, gaining position advantage against the threat, real time dissemination of battlefield information and situational awareness, and NBC detection and mitigation on a stabilized platform in all battlespace environments to include battlefield clutter. Must be capable of extended operations with decreased logistics and must provide commonality and equality in both speed and maneuverability for all ground and aerial maneuver vehicles supporting the force. Must be capable of meeting load bearing requirements for mission accomplishment.

Reference: Operational Concept for Maneuver Engineering.

23. TR 97-023. Mobility - Combat Dismounted.

Branch FOC. CM 97-003; DBS 97-030, DBS 97-031, DBS 97-033, DBS 97-034; EEL 97-017; EN 97-007, EN 97-008, EN 97-009, EN 97-018; IN 97-310, IN 97-320, IN 97-321, IN 97-330; MD 97-003; MSB 97-001, MSB 97-006; MSB 97-008; MP 97-013, MP 97-005.

Description: Forces operating in dismounted battlespace require the capability for rapid, agile maneuver in close terrain, vehicular restrictive terrain, and during airborne, air assault, and waterborne operations. Human capability enhancements of load bearing capabilities and nutritional/medical enhancements of human performance will make

dismounted soldiers capable of extended activity in all physical environments and climates, to include night and obscured environments.

Reference: TRADOC Pam 525-200-3; Operational Concept for Maneuver Engineering.

24. TR 97-024. Combat Support/Combat Service Support Mobility.

Branch FOC. AD 97-002; AV 97-008, AV 97-009, AV 97-010; CM 97-013, CM 97-016; DSA 97-019; EN 97-09, EN 97-15, EN 97-16, EN 97-17, EN 97-18, EN 97-19, EN 97-20; FA 97-011, FA 97-021, FA 97-030; MD 97-003, MD 97-005, MD 97-006; MP 97-005; MSB 97-008; SP 97-001, SP 97-002, SP 97-003, SP 97-004, SP 97-007, SP 97-009, SP 97-010, SP 97-011, SP 97-013, SP 97-014, SP 97-015, SP 97-016, SP 97-020; TC 97-003.

Description: Capability to effectively and efficiently move resources in a timely manner and keep pace with the supported force. Will provide maneuverability and agility, survivability, flexibility, timeliness, and safety in daylight, darkness, collision avoidance, and obscured vision conditions during all phases of movement.

References: TRADOC Pam 525-5; TRADOC Pam 525-200-3; TRADOC Pam 525-70; TRADOC Pam 525-75; TRADOC Pam 525-78; TRADOC Pam 525-200-2; TRADOC Black Book No. 4; Joint Vision 2010.

25. TR 97-025. Countermobility.

Branch FOC. BCL 97-003; CM 97-007 CM 97-010, CM 97-011; EN 97-010, EN 97-011; FA 97-028, FA 97-033; IN 97-180; MMB 97-007; MSB 97-013, MSB 97-014; SP 97-001, SP 97-002, SP 97-003, SP 97-006, SP 97-007, SP 97-009, SP 97-010, SP 97-011, SP 97-014, SP 97-015 SP 97-016, SP 97-017, SP 97-020.

Description: Capability for commanders to restrict the mobility of the threat, to control battle tempo, and to seize and maintain maneuver dominance. Capabilities include area denial, disrupting, turning, fixing or blocking enemy movement at the appropriate times and places of need. The capability also covers rapid, effective accurate delivery and emplacement of battlefield obstacles through use of direct/indirect, air/ground operations. Obstacles may consist of lethal or nonlethal means of delaying and neutralizing enemy formations before they can be brought to bear. Other capabilities include planning, creating, and emplacing man-made obstacles and exploiting natural obstacles while simultaneously assuring our own freedom to maneuver.

References: TRADOC Pam 525-5; TRADOC Black Book No. 4; Joint Vision 2010; Mission Need Statement for Tactical Liquid Explosives.

26. TR 97-026. Deployability.

Branch FOC. AD 97-001; AR 97-002; AV 97-

008; BCL 97-001; CH 97-009; CM 97-012; CS 97-002, CS 97-004; DSA 97-018; EEL 97-002, EEL 97-003, EEL 97-018; EN 97-004, EN 97-006, EN 97-007, EN 97-009, EN 97-014, EN 97-016, EN 97-017, EN 97-018, EN 97-020, EN 97-021, EN 97-029; FA 97-014, FA 97-016, IN 97-301; MD 97-002, MD 97-006, MD 97-008; MP 97-016; FA 97-021, FA 97-026; FI 97-001, FI 97-004, FI 97-005, FI 97-006, FI 97-008; MSB 97-001; QM 97-001, QM 97-002, QM 97-003, QM 97-004, QM 97-005, QM 97-006, QM 97-009, QM 97-011; SP 97-001, SP 97-002, SP 97-003, SP 97-007, SP 97-009, SP 97-010, SP 97-011, SP 97-012, SP 97-013, SP 97-014, SP 97-015, SP 97-016, SP 97-017, SP 97-019, SP 97-020.

Description: Capability to rapidly deploy, employ, and re-deploy while keeping pace with future technological advances in air, land, sea, and space delivery capabilities in support of strategic operational and tactical power projection and pre-positioned operations. Capability to be deployable with minimal preparation, operate in and from unimproved areas (at sea this includes operating in sea state 3), and conduct enroute operations. Capability to be rapidly operational with minimal support upon arrival with emphasis on reception, staging, onward movement and integration to the tactical assembly area.

References: TRADOC Pam 525-5; TRADOC Pam 525-60; TRADOC Pam 525-100-1; TRADOC Pam 525-200-2; TRADOC Pam 525-200-5; TRADOC Pam 525-200-6; TRADOC Black Book No; CASCOM Pub - Vision of Combined Arms Support.

27. TR 97-027. Navigation.

Branch FOC. AD 97-004; AR 97-002, AR 97-003, AR 97-004, AR 97-006, AR 97-007; AV 97-002; CM 97-014; DBS 97-032; DSA 97-006; EEL 97-002; EN 97-004, EN 97-007, EN 97-011; FA 97-005, FA 97-012; IN 97-320;

MMB 97-003; MSB 97-014; MP 97-006; SP 97-001, SP 97-002, SP 97-006, SP 97-007, SP 97-009, SP 97-010, SP 97-012, SP 97-014, SP 97-017.

Description: Forces require navigation capabilities that produce automated and on demand, real time, on-board, all weather position location which locates terrain features and elements of friendly units, while they are stationary and on the move. Capability will provide an auto navigation feature linked to terrain products and operational plans. Navigation information will be an integrated

part of situational awareness. Capability includes aerial, ground, and water surface navigation and movement masked by terrain.

References: FM 100-13; TRADOC Pam 525-5; TRADOC Black Book No. 4.

28. TR 97-028. Unmanned Terrain Domination.

Branch FOCs. AD 97-002, AD 97-007, AD

97-009, AV 97-002, DSA 97-001, DSA 97-002, DSA 97-006, DSA 97-007, DSA 97-009, DSA 97-010, DSA 97-011, DSA 97-012, DSA 97-013, DSA 97-014, DSA 97-015, DSA 97-017, DSA 97-021, DSA 97-024, DSA 97-025, EEL 97-01, EEL 97-04, EEL 97-05, EEL 97-06, EEL 97-07, EEL 97-13, EN 97-04, EN 97-10, EN 97-11, FA 97-001, FA 97-013, MI 97-001, MI 97-003, MI 97-008, MMB 97-001, MMB 97-002, MMB 97-012, MSB 97-002, MSB 97-014.

Description: Capability of land forces to dominate an area of operations (AO) through the effects of mass (the necessary concentration of combat power at the decisive time and place) without the need to fully commit troops. Includes the autonomous unmanned capability to achieve total situational awareness (on the ground or in the air), evaluate data received, develop courses of action consistent with the commander's intent, and employ combat power (lethal and nonlethal "smart" munitions) to achieve the commander's objectives. This "economy of force" means will control terrain, reduce the risk to soldiers in certain areas, and complement and maintain maneuver dominance at the strategic, operational, and tactical levels. Additionally, this capability will substantially enhance peacemaking and peacekeeping operations.

References: TRADOC Pam 525-5, paragraph 3-2b and 4-9; TRADOC Pam 525-75; TRADOC Black Book No. 4, pp. 16, 23, 24; Joint Vision 2010, p. 13,18; Mission Need Statement for Tele-Operated Munitions; Mission Need Statement for Nonlethal Mines and Munitions; Mission Need Statement for Unmanned Terrain Domination Capabilities.

2-5. Sustainment.

29. TR 97-029. Sustainment.

Branch FOC. AD 97-010; AR 97-002, AR 97-008, AR 97-012; AV 97-009, AV 97-010; BCL 97-003, BCL 97-009; CS 97-001; CH 97-002, CH 97-006, CH 97-007; CM 97-005, CM 97-013; CS 97-003, CS 97-004; DSA 97-018; EEL 97-016; EN 97-014, EN 97-015, EN 97-019, EN 97-020, EN 97-023; FA 97-016, FA 97-030, FA 97-031; FI 97-003, FI 97-004, FI 97-005, FI 97-006, FI 97-008; IS 97-001; MD 97-001, MD 97-002, MD 97-003, MD 97-004, MD 97-005, MD 97-006, MD 97-007, MD 97-008, MD 97-009, MD 97-010, MD 97-011, MD 97-012; MP 97-015, MP 97-016; MSB 97-004; OD 97-001, OD 97-003, OD 97-004, OD 97-005, OD 97-06, OD 97-007, OD 97-008, OD 97-014, OD 97-016, OD 97-017; QM 97-001, QM 97-002, QM 97-003, QM 97-004, QM 97-005, QM 97-006, QM 97-007, QM 97-008, QM 97-009, QM 97-011; SP 97-001, SP 97-002, SP 97-003, SP 97-004, SP 97-005, SP 97-006, SP 97-007, SP 97-008, SP 97-009, SP 97-010, SP 97-012, SP 97-013, SP 97-014, SP 97-015, SP 97-016, SP 97-017, SP 97-019, SP 97-020; TC 97-001, TC 97-002.

Description: Capability to provide flexible, tailorable, modular, seamless, anticipatory systems, processes, and services to deliver combat and combat service support in all operations. Capability for early entry and follow on forces to plan for and exploit host nation/or nearby nation support. Capability to provision and provide other support required to maintain personnel and equipment during prolong operations and/or combat until successful accomplishment or revision of the mission.

References: TRADOC Pam 525-5; TRADOC Pam 525-60; TRADOC Pam 525-63; TRADOC Pam 525-200-2; TRADOC Pam 525-200-5; TRADOC Pam 525-200-6; TRADOC Black Book No. 3; TRADOC Black Book No. 4; Joint Vision 2010; Mission Need Statement for ICS3; U.S. Army Transportation Corps Strategic Vision. Ordnance Corps Vision; Battery Modernization Strategy; Army Strategic Logistics Plan. CASCOM Pub - Vision of Combined Arms Support;

30. TR 97-030. Sustainment Maintenance.

Branch FOC. AD 97-010; AR 97-002, AR 97-008, AR 97-012; AV 97-009, AV 97-010; BCL 97-003, BCL 97-009; CM 97-004; CM 97-005; CS 97-001, CS 97-003, CS 97-004; DSA 97-018; EN 97-014, EN 97-015, EN 97-019, EN 97-020, EN 97-30; FA 97-016, FA 97-030, FA 97-031; FI 97-003, FI 97-004, FI 97-005, FI 97-006, FI 97-008; IS 97-001; MD 97-001, MD 97-002, MD 97-003, MD 97-004, MD 97-005, MD 97-006, MD 97-007, MD 97-008, MD 97-009, MD 97-010, MD 97-011, MD 97-012; MP 97-015, MP 97-016; OD 97-001, OD 97-003, OD 97-004, OD 97-005, OD 97-006, OD 97-007, OD 97-008, OD 97-014, OD 97-016, OD 97-017; QM 97-001, QM 97-002, QM 97-003, QM 97-004, QM 97-005, QM 97-006, QM 97-007, QM 97-008, QM 97-009, QM 97-011; SP 97-001, SP 97-002, SP 97-003, SP 97-004, SP 97-005, SP 97-006, SP 97-007, SP 97-008, SP 97-009, SP 97-010, SP 97-012, SP 97-013, SP 97-014, SP 97-015, SP 97-016, SP 97-017, SP 97-019, SP 97-020; TC 97-001, TC 97-002.

Description: Capability to support the combat readiness and effectiveness of the Army in the field. Will provide anticipatory, real time, and remote diagnostics and prognostics, to provide efficient battle damage assessment and repair. The following areas of maintenance concern will employ and be dependent on developed capabilities in this area: maintenance aids, contact maintenance, recovery maintenance data, tools, operator maintenance, operator decontamination, host-nation support, operations in all environments (NBC) during all operations.

References: TRADOC Pam 525-5; TRADOC Pam 525-60; TRADOC Pam 525-63; TRADOC Pam 525-200-2; TRADOC Pam 525-200-5; TRADOC Pam 525-200-6; TRADOC Black Book No. 3; TRADOC Black Book No. 4; Joint Vision 2010; Mission Need Statement for ICS3. U.S. Army Transportation Corps Strategic Vision. Ordnance Corps Vision. Battery Modernization Strategy; Army Strategic Logistics Plan; CASCOM Pub - Vision of Combined Arms Support.

31. TR 97-031. Sustainment Services.

Branch FOC. AD 97-010; AR 97-002, AR 97-008, AR 97-012; AV 97-009, AV 97-010; BCL 97-003, BCL 97-009; CS 97-001; CH 97-011; CM 97-005; CS 97-003, CS 97-004; DSA 97-018; EN 97-014, EN 97-015, EN 97-019, EN 97-020; FA 97-016, FA 97-030, FA 97-031; FI 97-003, FI 97-004, FI 97-005, FI 97-006, FI 97-008; IS 97-001; MD 97-001, MD 97-003, MD 97-004, MD 97-005, MD 97-006, MD 97-007, MD 97-008, MD 97-009, MD 97-010, MD 97-011, MD 97-012; MP 97-015, MP 97-016; OD 97-001, OD 97-003, OD 97-004, OD 97-005, OD 97-006, OD 97-007, OD 97-008, OD 97-014, OD 97-016, OD 97-017; QM 97-001, QM 97-002, QM 97-003, QM 97-004, QM 97-005, QM 97-006, QM 97-007, QM 97-008, QM 97-009, QM 97-011; SP 97-001, SP 97-002, SP 97-003, SP 97-004, SP 97-005, SP 97-006, SP 97-007, SP 97-008, SP 97-009, SP 97-010, SP 97-012, SP 97-013, SP 97-014, SP 97-015, SP 97-016, SP 97-017, SP 97-019, SP 97-020; TC 97-001, TC 97-002.

Description: Capability to execute and manage all personnel-related matters and contribute to the morale and welfare of the soldier in the field by providing the most benefit to the maximum number of personnel. Will provide near real time strength accounting, replacement operations, religious support/Pastoral care operations, medical support operations, casualty reporting, finance services, postal services, morale support activities, and legal services. These services share equal importance with the requirement for availability of materiel on the battlefield.

References: TRADOC Pam 525-5; TRADOC Pam 525-60; TRADOC Pam 525-63; TRADOC Pam 525-200-2; TRADOC Pam 525-200-5; TRADOC Pam 525-200-6; TRADOC Black Book No. 3; TRADOC Black Book No. 4; Joint Vision 2010; Mission Need Statement for ICS3, U.S. Army Transportation Corps Strategic Vision. Ordnance Corps Vision. Battery Modernization Strategy. Army Strategic Logistics Plan. CASCOM Pub - Vision of Combined Arms Support.

32. TR 97-032. Sustainment Logistics Support.

Branch FOC. AD 97-010; AR 97-002, AR 97-008, AR 97-012; AV 97-009, AV 97-010; BCL 97-003, BCL 97-009; CM 97-004; CS 97-001; CH 97-003; CM 97-005; CS 97-003, CS 97-004; DSA 97-018; EEL 97-016, EN 97-004, EN 97-008, EN 97-010, EN 97-018, EN 97-014, EN 97-015, EN 97-019, EN 97-020; FA 97-016, FA 97-030, FA 97-031; FI 97-003, FI 97-004, FI 97-005, FI 97-006, FI 97-008; IS 97-001; MD 97-001, MD 97-003, MD 97-004, MD 97-005, MD 97-006, MD 97-007, MD 97-008, MD 97-009, MD 97-010, MD 97-011, MD 97-012; MP 97-015, MP 97-016; MSB 97-012; OD 97-001, OD 97-003, OD 97-004, OD 97-005, OD 97-006, OD 97-007, OD 97-008, OD 97-014, OD 97-016, OD 97-017; QM 97-001, QM 97-002, QM 97-003, QM 97-004, QM 97-005, QM 97-006, QM 97-007, QM 97-008, QM 97-009, QM 97-011; SP 97-001, SP 97-002, SP 97-003, SP 97-004, SP 97-005, SP 97-006, SP 97-007, SP 97-008, SP 97-009, SP 97-010, SP 97-012, SP 97-013, SP 97-014, SP 97-015, SP 97-016, SP 97-017, SP 97-019, SP 97-020; TC 97-001, TC 97-002.

Description: Capability to provide responsive, flexible, and precise field services support to soldiers during any environmental or tactical situation. Will be able to perform graves registration, airdrop, fuel dispensing, water

production and delivery, food preparation, clothing exchange and bath, laundry, light textile and clothing renovation, unit reconstitution, decontamination, and salvage. Will provide less continuous support with a smaller logistics footprint, decreasing the vulnerability of the Army's logistics lines of communication.

References: TRADOC Pam 525-5; TRADOC Pam 525-60; TRADOC Pam 525-63; TRADOC Pam 525-200-2; TRADOC Pam 525-200-4; TRADOC Pam 525-200-5; TRADOC Black Book No. 3; TRADOC Black Book No. 4; Joint Vision 2010; Mission Need Statement for ICS3; U.S. Army Transportation Corps Strategic Vision; Ordnance Corps Vision; Battery Modernization Strategy; Army Strategic Logistics Plan; CASCOM Pub - Vision of Combined Arms Support.

33. TR 97-033. Sustainment Transportation.

Branch FOC. AD 97-010; AR 97-002, AR 97-008, AR 97-012; AV 97-009, AV 97-010; BCL 97-003, BCL 97-009; CM 97-004; CH 97-009; CM 97-005; CS 97-001, CS 97-003, CS 97-004; DSA 97-018; EEL 97-016; EN 97-014, EN 97-015, EN 97-019, EN 97-020; FA 97-014, FA 97-016, FA 97-021, FA 97-026, FA 97-030, FA 97-031; FI 97-003, FI 97-004, FI 97-005, FI 97-006, FI 97-008; IS 97-001; MD 97-001, MD 97-002, MD 97-003, MD 97-004, MD 97-005, MD 97-006, MD 97-007, MD 97-008, MD 97-009, MD 97-010, MD 97-011, MD 97-012; MP 97-015, MP 97-016; OD 97-001, OD 97-003, OD 97-004, OD 97-005, OD 97-006, OD 97-007, OD 97-008, OD 97-014, OD 97-016, OD 97-017; QM 97-001, QM 97-002, QM 97-003, QM 97-004, QM 97-005, QM 97-006, QM 97-007, QM 97-008, QM 97-009, QM 97-011; SP 97-001, SP 97-002, SP 97-003, SP 97-004, SP 97-005, SP 97-006, SP 97-007, SP 97-008, SP 97-009, SP 97-010, SP 97-012, SP 97-013, SP 97-014, SP 97-015, SP 97-016, SP 97-017, SP 97-019, SP 97-020; TC 97-001, TC 97-002.

Description: Capability to move personnel, equipment, materiel, and supplies to sustain operations and move the forces which execute those operations. Will provide for all elements of moving forces and their logistics requirements to the locations required by operations. Will encompass the load-carrying capacity of mode operators, terminal operations, and movement control. Materiel must be transferred from one mode of transportation to another at sea ports of debarkation, rail and air-heads, inland waterways, and truck terminals. Air and sea ports of debarkation must be cleared expeditiously to make way for follow-on cargo. Sustaining supplies and replacement personnel will flow over the same routes required by maneuver units and will compete for limited main supply routes in the theater.

References: TRADOC Pam 525-5; TRADOC Pam 525-60; TRADOC Pam 525-63; TRADOC Pam 525-200-2; TRADOC Pam 525-200-5; TRADOC Pam 525-200-6; TRADOC Black Book No. 3; TRADOC Black Book No. 4; Joint Vision 2010; Mission Need Statement for ICS3, US Army Transportation Corps Strategic Vision; Ordnance Corps Vision; Battery Modernization Strategy; Army Strategic Logistics Plan, CASCOM Pub - Vision of Combined Arms Support.

34. TR 97-034. Enemy Prisoner of War/Civilian Internee (EPW/CI) Operations.

Branch FOC. CH 97-004; CS 97-004; FI 97-003; IS 97-001, IS 97-002, IS 97-003, IS 97-004, IS 97-005; MD 97-001, MD 97-002, MD 97-003, MD 97-004, MD 97-005, MD 97-006, MD 97-010, MD 97-011; MI 97-003; MP 97-009; MSB 97-0010.

Description: Capability to conduct enemy prisoners of war (EPW) and civilian internees (CI) evacuation, medical support, accountability, and sustainability operations. EPW accountability is mandated by the Geneva Convention Agreements and by International Committee of the Red Cross (ICRC) rules. Military Police units conducting internment or resettlement operations require the capability to rapidly recall and forward personnel data to facilitate accountability. This capability should be compatible with emerging information exchange and processing systems and would capture and report costs associated with EPW and CI pay. Capability to translate (to and from) is required to expedite the information gathering process, including HUMINT collection, translation, and document exploitation and interrogation capability. The capability for quick access to EPW/CI information enables the timely availability of comprehensive information and identification of EPW/CI within compounds, during transit, turnover to a third party, and during repatriation. Military Police require the capability to execute the expeditious evacuation of EPW/CI to retain freedom of maneuver for combat forces and control of personnel within compounds. This can only be attained through early planning and prioritization of sustainment resources on the battlefield.

Reference: TRADOC Pam 525-75.

35. TR 97-035. Power Source and Accessories.

Branch FOC. AR 97-007, AR 97-008; CH 97-006; CS 97-001; MI 97-010; MMB 97-006; SP

97-012, SP 97-017, SP 97-019.

Description: Capability to provide a small, lightweight, long lasting, high energy density, maintenance free, low signature, high quality power source for electronics communications, weapons, individual soldiers, vehicles, air and water craft, and medical equipment which will be cost effective, operate in any environment, and will be environmentally safe. For the individual soldier the objective capability will be a universal power source that provides simultaneous power to any/all soldier carried systems/subsystems without degradation.

Reference: Battery Modernization Strategy.

36. TR 97-036. Non-Primary Power Sources Combat Vehicles/ Support Systems.

Branch FOC. AR 97-008; CH 97-007; FA 97-018; MMB 97-006.

Description: Capability to provide a small, lightweight, and low signature non-primary power sources for combat vehicles and/or support systems. This will allow the operation of combat vehicle electro-optics communications, weapons, life-support, and protection or survivability devices or accessories while the primary vehicle power source is shut down.

Reference: TRADOC Pam 525-5. TR 97-037. Combat Vehicle Propulsion.

Branch FOC. AR 97-005; AV 97-009; FA 97-017; DSA 97-019; MMB 97-004.

Description: Capability to provide high power and fuel efficient propulsion for combat vehicles. Capability must be small, lightweight, reliable, maintainable, safe, low signature, multi-fuel capable and environmentally safe. Capability to provide energy on demand for propulsion, life support and weapon system functions.

Reference: TRADOC Pam 525-5.

38. TR 97-038. Casualty Care, Patient Treatment and Area Support.

Branch FOC. CH 97-002; CM 97-004, CM 97-006; MD 97-003.

Description: The Army requires the capability for level I and II medical treatment and Area Support. Rapid casualty location and application of improved treatment modules will provide focus toward reducing the historically recalcitrant killed-in-action (KIA) rate. The capability requires improved methods of physiological resuscitation, improved diagnostic and treatment capabilities at both unit and area-level treatment facilities. All health care providers will require advance trauma management training and sustainment training and organizations must provide communications between providers and mentors to optimize reductions in the KIA rate. Medical personnel require the ability to treat patients under all conditions and require night vision capability. CHS providers require the ability to initiate and continue casualty treatment under nuclear, biological, and chemical (NBC) conditions. The combat medic will require improved ability to function while in individual protective gear. All forward deployed medical modules will require collective medical protection to ensure continued patient care under NBC conditions. NBC casualties will require improved methods of rapid decontamination and emergency treatment followed by protection and continued medical management to ensure survival. Digitized patient records, beginning prior to deployment and continuing throughout casualty management are required to ensure seamless medical treatment. Automated read/write devices and data base software for medical status, patient tracking and reconstitution are required for use before, during, and after operations to ensure soldier readiness for combat and to allow timely transmission of location and status to health providers, commander's, and family members. Capability to track casualty emergency ministrations and pastoral care information to data collection points for use by casualty assistance offices and notification of NOK. Capability would provide notification officers and accompanying chaplains with vital battlefield pastoral care information.

Reference: TRADOC Pam 525-50; TRADOC Pam 525-78, paragraph 3-3c; TRADOC Pam 525-200-5.

39. TR 97-039. Lines of Communications (LOC) Maintenance and Repair.

Branch FOC. EN 97-004, EN 97-005, EN 97-006, EN 97-007, EN 97-008, EN 97-009, EN 97-012, EN 97-015, EN 97-016, EN 97-017, EN 97-018, EN 97-019, EN 97-020, EN 97-021, EN 97-022.

Description: Capability to assess, repair, and maintain LOCs in a vast spectrum of environments. Includes repair, refurbishment, or construction of ports, airfields, roads, bridges, and other transportation conduits. This includes preparation and installation activities for logistics over the shore (LOTS) operations.

2-6. Lethality.

40. TR 97-040. Firepower Lethality.

Branch FOC. AD 97-003, AD 97-009, AD 97-012; AR 97-001; AV 97-006; DBS 97-10, DBS 97-011, DBS 97-012, DBS 97-013, DBS 97-014, DBS 97-015, DBS 97-016, DBS 97-017, DBS 97-018, DBS 97-61; DSA 97-001, DSA 97-002, DSA 97-003, DSA 97-014, DSA 97-023, DSA 97-024, DSA 97-026, DSA 97-028; EEL 97-001, EEL 97-004; EN 97-010, EN 97-011; FA 97-001, FA 97-002, FA 97-017, FA 97-020, FA 97-021, FA 97-026, FA 97-029, FA 97-032; IN 97-100, IN 97-110, IN 97-111, IN 97-112, IN 97-119, IN 97-120, IN 97-130, IN 97-140, IN 97-150, IN 97-160; MI 97-008; MMB 97-001; MP 97-002; MSB 97-002, MSB 97-014; SP 97-001, SP 97-002, SP 97-003, SP 97-006, SP 97-007, SP 97-009, SP 97-010, SP 97-011, SP 97-012, SP 97-014, SP 97-015, SP 97-016, SP 97-020; TC 97-001.

Description: Capability to provide responsive overmatching lethal combat power against current and future threats throughout the battlespace. Capability should be impervious to countermeasures and all environmental conditions to include battlefield clutter. Capability should include overmatching range, probability of hit and kill, accuracy, which minimize resources expended, maximizing effects, and minimizing collateral damage.

Reference: TRADOC Pam 525-200-5.

41. TR 97-041. Operations in an Unexploded Ordnance(UXO)/Mine Threat Environment.

Branch FOC. AR 97-009; DSA 97-006; EEL 97-007; EN 97-002; FA 97-034; OD 97-009, OD 97-013; MMB 97-005; MSB 97-006.

Description: Capability of land forces to safely conduct in-stride breaching and assure tempo of operations when facing mines and unexploded ordnance threats. The capability must support rapid and accurate remote stand off surveillance, reconnaissance, detection and location of mines, UXOs components, materials, and neutralize or destroy identified devices. Capability must limit munitions and submunitions dud rates to eliminate UXO hazards. Capability must relay tactical data through strategic systems during employment of contingency forces. Capability must meet Joint Countermine and Army criteria, and must support battlefield dominance while minimizing any decrease of operational tempo.

References: TRADOC Pam 525-5, p. 3-9; Joint Vision 2010 pp.13, 20-21, 22-24, 25.

42. TR 97-042. Firepower Nonlethal.

Branch FOC. CM 97-007, CM 97-011; IN 97-400, IN 97-410, IN 97-420, IN 97-430; MP 97-014; FA 97-033; EN 97-010, EN 97-011; SP 97-012, SP 97-020; EEL 97-006; DBS 97-040, DBS 97-041, DBS 97-042, DBS 97-043; MMB 97-005, MMB 97-016; MSB 97-013, MSB 97-014; SP 97-001, SP 97-002, SP 97-003, SP 97-006, SP 97-007, SP 97-009, SP 97-010, SP 97-011, SP 97-013, SP 97-014, SP 97-015, SP 97-016, SP 97-020.

Description: Capability to safely engage or control personnel and degrade or immobilize equipment using nonlethal means throughout the battlespace during combat or stability and support operations.

Reference: TRADOC Pam 525-73.

2-7. Survivability

43. TR 97-043. Survivability - Materiel.

Branch FOC. AD 97-008, AD 97-009; AR 97-003, AR 97-015; AV 97-007; CM 97-004, CM 97-007; DSA 97-003, DSA 97-004, DSA 97-028, DSA 97-030, EEL 97-007, EEL 97-009, EEL 97-010; EN 97-005, EN 97-006, EN 97-009, EN 97-012, EN 97-013; EEL 97-008, FA 97-003, FA 97-004, FA 97-011, FA 97-034; FI 97-008; IN 97-230; MI 97-003, MI 97-004, MI 97-007; MMB 97-008, MMB 97-013, MMB 97-014, MP 97-001, MP 97-010, OD 97-017, SP 97-012; MSB 97-003, MSB 97-004, MSB 97-006, MSB 97-008; SP 97-001, SP 97-002, SP 97-003, SP 97-004, SP 97-005, SP 97-006, SP 97-007, SP 97-008, SP 97-009, SP 97-010, SP 97-012, SP 97-014, SP 97-015, SP 97-016, SP

Description: Capability to survive against the full spectrum of battlespace threats (directed energy weapons, NBC weapons, thermal and ballistic weapons, corrosives, environmental effects). Integration of an optimized suite of detection, warning, hit, penetration, and kill avoidance measures is necessary to achieve this. Capability of surviving against threats attacking at any aspect around, above, or below the system. Sensor, information systems, and countermeasure combinations providing this capability must be able to operate autonomously, while retaining semi-automatic and manual modes. Optimization of the suite requires the proper combination of signature management, sensors, countermeasures, such as smoke/active protection/obscurants, and armors, all developed and integrated as part of the system's basic design, to reduce cost, maximize effectiveness, and minimize system level burdens. Capability required to protect facilities, information systems, and equipment by minimizing risks associated with acts of terrorism and sabotage, including sympathetic detonations of ammunition stores, terrorist attacks, or direct and indirect fires. This includes the capability to rapidly construct and repair fortifications, protective shelters/ positions, forward operating bases, landing strips and pads, and combat roads and trails. Capability to enhance aircraft and aircrew survival. Capability to survive through the use of active and passive defense measures.

References: TRADOC Pam 525-5; TRADOC Pam 525-60; TRADOC Pam 525-63; TRADOC Pam 525-75, paragraphs 3-3b, 3-3c, 4-5c, 3-3e, 4-5e; TRADOC Pam 525-200-2; TRADOC Pam 525-200-5; TRADOC Black Book No. 4; Joint Vision 2010; Ordnance Corps Vision; Maneuver Support Enduring Battlefield Function.

44. TR 97-044. Survivability - Personnel.

Branch FOC. AD 97-008; AR 97-012; AV 97-007; CM 97-003, CM 97-004, CM 97-006, CM 97-007; EEL 97-008; EN 97-009, EN 97-012, EN 97-013; FA 97-003; FI 97-008; IN 97-200, IN 97-210, IN 97-220, MD 97-009 MD 97-010, MD 97-011, MD 97-012, MD 97-001, MD 97-03, MD 97-04, MD 97-005, MD 97-06, MD 97-07, MD 97-08, MP 97-001, MP 97-010; MMB 97-014; MSB 97-003; MSB 97-004, MSB 97-006, MSB 97-008; SP 97-001, SP 97-002, SP 97-003, SP 97-004, SP 97-009, SP 97-010, SP 97-011, SP 97-012, SP 97-014, SP 97-015, SP 97-016, SP 97-017, SP 97-020.

Description: Army forces operating throughout the battlefield will be highly survivable. This survivability will be achieved through the Integration of overmatching lethality, situational awareness, state of the art sensors and countermeasures, a full complement of directed energy, ballistic, nuclear, chemical and biological, endemic disease, thermal, and environmental protections. Army forces will derive their survivability from the amalgamation of the individual soldier and combat vehicle survivability (including crash-worthiness to protect crew members and passengers from injury during accidents), its redundant force structure and the density of distribution of its combat power within the battlespace. Personnel survivability is comprised of both active and passive survivability capabilities.

a. Active capabilities. Army forces will have active capabilities to ensure overmatching survivability including soldier to soldier/vehicle to vehicle/soldier to vehicle combat identification, combat life saving, battle injury treatment and prevention, non-battle casualty prevention and treatment, physiological monitoring and battle stress and selected non-battle injuries prediction. Vehicle capabilities will include maneuverability, low observability, and active protection. When forces are operating independently, in war or sustainment and support operations, it will be augmented with veterinary services.

b. Passive capabilities. Soldiers require passive capabilities to ensure overmatching survivability including timely intelligence, and low observability, light weight protection from ballistic, directed energy (to include agile vision protection throughout the electromagnetic spectrum), tactical and industrial chemicals, and environmental stresses, and medical protection from disease.

References: TRADOC Pam 525-5; TRADOC Pam 525-63.

45. TR 97-045. Camouflage, Concealment, and Deception (CCD).

Branch FOC. AD 97-008; AR 97-002, AR 97-003; AV 97-007; CM 97-007, DBS 97-024, DSA 97-030, DSA 97-004, EEL 97-009, EN 97-13; FA 97-003, FA 97-018, FA 97-029, MI 97-009; MP 97-001, MSB 97-008, MSB 97-009; MMB 97-009; SP 97-012, IN 97-210, IN 97-240.

Description: Capability to reduce the probability of being detected, acquired, ranged, engaged, and hit by the threat. This capability is needed to protect the force, and reduce or eliminate visual, electromagnetic, acoustic, infrared, and radar signatures. Capability to mask friendly intentions, protect forces, shape the battlespace and conduct decisive operations by reducing or eliminating operational signatures and employing decoys.

References: TRADOC Pam 525-200-3; TRADOC Pam 525-5; TRADOC Pam 525-75; paragraph 3-3g and 4-5g;

TRADOC Pam 525-200-2; TRADOC Black Book No.4; CAC&FLW Pam 525-05, Mission Need Statements for Multi-spectral Camouflage.

46. TR 97-046. Battlefield Obscuration.

Branch FOC. AR 97-002, AR 97-003; CM 97-007; EEL 97-010; FA 97-003, MMB 97-010, MMB 97-011; MP 97-001; MSB 97-005.

Description: Capability to selectively deny enemy observation, target acquisition, sensing and signaling capability through the use of visible and invisible obscurants.

References: TRADOC Pam 525-5, TRADOC Pam 525-3.

2-8. Training.

47. TR 97-047. Leader and Commander Training.

Branch FOC. AR 97-013; BCL 97-016, BCL 97-017, BCL 97-020; CH 97-011; DSA 97-029; EN 97-006, EN 97-027; FI 97-007; MI 97-011; MMB 97-020; MP 97-012; SP 97-005, SP 97-18; TRD 97-002; TRD 97-005; TRD 97-017.

Description: Capability to train leaders and commanders to be versatile and adaptive to varied mission requirements. Future commanders and their staffs will face a technologically advanced, information-rich, operationally diverse, and fast paced battle staff environment. Trainers must fully understand the impacts of this environment on leaders and commanders. Training systems must provide capabilities needed to: Develop and exercise cognitive skills and knowledge to enable them to handle the ambiguity of combat with confidence, and adjust and adapt in real time to quickly changing task demands, operational situations and conditions.

b. Train leaders and commanders to make optimal use of battle staffs as problem solving resources through improved teamwork and collaboration. Commanders must have training and team building strategies at their disposal to use in team integration. Training developers need a thorough understanding of the factors influencing effective teams in order to design training and training support products that promote effective teamwork. Both must understand the factors influencing high and low performing teams and how these factors may vary with different missions and mission conditions. Commanders must also be able to choose soldiers for units, task forces, special team assignments, and duty assignments based on a soldier's proven performance and training on mission-relevant skills and tasks.

c. Provide leaders and commanders ample opportunities, both at homestation and during deployment, to gain essential experience in Battle Command decision making through training. This must occur through training/mission rehearsal in simulators (e.g. individual battle staff trainers; incorporation of battle staff decision processes into battle simulations) or other training media that are reconfigurable to match training scenarios to battlefield function or operational mission.

d. Train leaders and commanders in the interpersonal skills needed to work effectively with diverse groups of people. Future leaders must be able to shape units into cohesive teams, work effectively with joint, coalition and interagency personnel, and Non-Governmental Organizations (NGOs) and Private Volunteer Organizations (PVOs) and the media, and serve as effective intermediaries between the Army and US and foreign civilians.

e. Train leaders and commanders to comprehend the organization, structure, capabilities, and limitations of Force XXI C4I architectures (organic and split-based).

f. Train leaders and commanders to either exploit or react to the influence of the media on operations. Commanders need to be schooled on the capabilities of the media in all its forms: electronic, written, and audio. Commanders must be constantly aware of the changing Global Information Environment, its effect on the opinions, attitudes, and beliefs held by the American public, political leaders, soldiers and their families, allies, adversaries, and other important audiences, and the impact of these opinions, attitudes, and beliefs on the Army and its operations.

g. Train leaders and commanders to serve as the Army's basic environmental stewards, and to take a professional and personal responsibility for understanding and supporting the Army's environmental program.

In order to develop effective training for commanders and leaders, training developers need information that describes the situations leaders will encounter during specific types of operations and while rapidly transitioning from one type of operation to another. Essentially, the Army needs the capability to model leadership requirements in future operations. Once trainers identify the most essential leadership capabilities for the future, they must be able to determine the best mix of training strategies and tools to train and assess competencies throughout leaders' careers.

References: TRADOC Pam 525-5; TRADOC Pam 525-75.

48. TR 97-048. Performance Support Systems.

Branch FOC. AD 97-005; AV 97-003, AV 97-014; BCL 97-003; EN 97-006; EN 97-011; FA 97-015; IS 97-003; MI 97-011; MMB 97-020; MP 97-012; SP 97-005, SP 97-18; TRD 97-003.

Description: Capability to provide soldiers enhanced performance support on the job to enable them to adapt effectively to quickly changing missions and equipment technologies, and adapt to a wider array of tasks and responsibilities. Advanced performance support capabilities will blur the lines between training and operational tools. Many performance support technologies will be deployed during conflict to help soldiers sustain their skills and do their jobs on the battlefield. The following types of capabilities are needed:

- a. Learning/job-aid environments that, for example, put the digitized expertise of senior officers and NCOs on a soldier's desktop.
- b. Smart tutors and embedded diagnostics systems that assist soldiers in diagnosis and repairs, as well as other types of problem solving and decision making.
- c. Guided, goal oriented simulations that enable soldiers to interact with and get advice from computerized experts while working through situations they encounter on the job.
- d. Decision aids that support mission planning, preparation, and execution. Soldiers will need the capability to move around freely to perform their duties while interacting with performance support systems via visual and auditory or other hands-free user-friendly interfaces. Systems will need to be embedded within equipment or organic TOE assets. Selected systems will need to be man portable. Training and materiel developers need the capability to identify those tasks and conditions where development of performance support systems will have the most payoff for the Army. Information regarding the perceived performance support needs of soldiers and officers in TOE units is needed to assist training developers in identifying requirements.

References: TRADOC Pam 525-5; TRADOC Pam 525-60, paragraph 3.2.e.2; TRADOC Pam 525-70; TRADOC Pam 525-75; TRADOC Pam 525-200-4; TRADOC Pam 525-200-5.

49. TR 97-049. Battle Staff Training and Support.

Branch FOC. AR 97-013; BCL 97-010, BCL 97-016; CM 97-001, CM 97-008; FA 97-015; FI 97-009; SP 97-005, SP 97-018, SP 97-020; TRD 97-004.

Description: Capability of Battle Command Support Teams (BCST) to support the commander in controlling current operations and adjusting plans for future operations. The staff must be an extension of the commander. The staff must provide the critical information necessary for the commander to make informed, timely decisions to best effect the action/mission requirements. Skilled staffs work within the commander's intent to direct and control units and allocate the means to support that intent. They assist the commander in anticipating the outcome of the current operation and developing the concept for the follow-on mission. They understand, and can apply, a common doctrine. The battle staff must also understand what information the commander deems important for making decisions and provide it in an accurate and timely manner. It is the product of staff work that serves the needs of the commander. Battle staffs must be organized to ensure the command process is sustained during any absence of the commander. Underlying this capability is the requirement to recruit, develop, and retain quality people. Recruiting programs must be developed and employed to determine early the capabilities and potential of commanders and staffs. Training programs must be developed and harness new technologies to improve the comprehension and retention of key leadership and staff skills. BCSTs are desirable to reduce strategic lift requirements, present smaller targets, enhance mobility and reduce sustainment requirements. In order that BCSTs be reduced in size, but still perform the same functions, technologies must be applied that will reduce the workload on soldiers. Enabling technologies include decision support software and planning aids, user friendly systems that optimize work performance, systems that automate staff functions, allow workload sharing and predict high workload periods and miniaturized hardware. Deployed BCSTs may also be made smaller through the use of virtual staffs. Using advanced command, control, and communications systems, small BCSTs could be linked to larger staffs in the rear, in a sanctuary, or even CONUS. Utilizing a shared, relevant common picture, rearward staffs could provide timely and accurate planning, operational and administrative support to the forward located BCST. Other actions required to make BCSTs smaller are more efficient and effective man-machine information interface, reorganization of staff structure around information flows that reduce fragments, stovepipes, and hand-offs. Staffs should be internetted and at least partially non-hierarchical to conduct cross-BOS processes.

50. TR 97-050. Joint, Combined and Interagency Training.

Branch FOC. AR 97-013; BCL 97-018; CH 97-011; EEL 97-021, EEL 97-022; EN 97-003, EN 97-005, EN 97-006, EN 97-009, EN 97-030; FA 97-024; FI 97-009; MI 97-011; MP 97-015; SP 97-005, SP 97-018, SP 97-020; TRD 97-007.

Description: Capability to conduct training and mission rehearsals for joint, combined or interagency operations. Army units need the capability to reconfigure virtual, constructive and live simulations to train/mission rehearse joint, combined and interagency operations. Commanders and individual battle staff members must be able to practice problem solving and decision making skills in mission relevant, joint, combined and interagency scenarios prior to their participation in exercises or use on the battlefield. They must understand the differences in the Army's Tactical Decision Making Process and the Joint Deliberate and Crisis Action Planning Process. Soldiers need the ability to train-up rapidly on a variety of potential topics including foreign cultures and foreign language skills, and the doctrine and standing operating procedures or terminology used by other services, coalition forces or agencies. Units need the capability to link-up via distance learning technologies with joint, combined and interagency personnel for common training/mission rehearsal. Other services resources must be integrated into battalion and brigade level simulations to train other service's combat capabilities on a regular basis. Commanders also need capability to bring together Army units, including Reserve Components, with joint, combined and interagency forces for training/mission rehearsal through linkage of synthetic distributed environments including common, data-linked terrain databases.

References: TRADOC Pam 525-5; TRADOC Pam 525-75.

51. TR 97-051. Training Infrastructure.

Branch FOC. AR 97-013; DBS 97-070; FA 97-037; IN 97-990; MI 97-011; MP 97-012; SP 97-005; SP 97-018; SP 97-020; TRD 97-011; TRD 97-006; TRD 97-001; TRD 97-010; TRD 97-018.

Description: Capability to deliver required training, throughout a soldier's career, how, when, and where it will be most training and cost-effective. Soldiers must be able to learn and practice the basic job-oriented physical and mental skills and gain required knowledge at their primary duty station, receive advanced individual training at homestation distributed training centers, and learn and practice hands-on skills on-the-job. Only the most difficult hands-on skills, and selected courses taught using small group instruction, will require training on-site at the school. To achieve maximum effectiveness and efficiency, training must be self-paced and individualized to a soldier's needs. Soldiers must have easy access to individualized sustainment training and Army training doctrine at homestation and post-mobilization. The training infrastructure must be designed to fully support this evolution to phased-in, individualized, distributed "soldier-oriented" training. Training developers at the schools must be linked to unit commanders in order for them to do integrated and coordinated training development, delivery, and testing. Training developer-unit linkages, as well as training developer-unit-CTC linkages, will also enable school and unit training developers to receive timely feedback on new and emerging training requirements as well as feedback on soldier performance. Training developers at both unit and school sites must have ready access to easy to use training authoring tools and training doctrine. Authoring tools must be capable of quickly building training programs with minimal input from a unit or school developer. Linkages between the services' training developers and training development systems will support identification of tasks for which common training can be developed. Linkages between the services' video-tele-training and Internet based training systems will support joint training delivery. Training infrastructure must also be capable of:

- a. Developing and delivering training/mission rehearsals, on demand, to meet contingency mission requirements. Training developers need capability to develop new or reconfigure existing training for a variety of media on short notice. Units must be capable of rapid planning, desktop/on-line development, and delivery of training /mission rehearsals for contingency missions. Training developers and units must also be able to rapidly develop performance evaluation tools tailored to present level of unit performance and requirements of the immediate mission.
- b. Providing commanders knowledge and decision aids necessary to select best mix of training and performance support option from the suite of available alternatives (e.g., live, virtual and constructive simulations or a combination thereof, individual and collective training support packages, paper-based training/job aids, training devices and simulations, distance learning products, field exercises, electronic performance support systems, embedded training). Commanders must have capability to factor need for multi-service, multi-national, and interagency training into equation for determining best training mix. Commanders also must be able to select from a suite of individual and collective performance evaluations to build an overall evaluation strategy that provides them essential feedback on unit readiness for the immediate mission.

c. Providing training developers/unit commanders ability to employ valid performance enhancing techniques appropriately to optimize soldier performance.

d. Providing soldiers the means to identify training and skill requirements for various unit and duty assignments. Soldiers also must be able to assess their status relative to these skill requirements and to other soldiers, for purposes of self-development.

References: TRADOC Pam 525-5; TRADOC Pam 525-75, paragraph 4-2 (a-f); TRADOC Pam 525-200-3.

52. TR 97-052. Training Aids, Devices, Simulators, and Simulations (TADSS) Fidelity Requirements.

Branch FOC. AR 97-013; AV 97-014; BCL 97-003; EN 97-003, EN 97-030; SP 97-005, SP 97-018, SP 97-020; TRD 97-012.

Description: Capability to employ the minimum essential level of fidelity in training aids, devices, simulators, and simulations (TADSS) to support attaining and sustaining individual and collective warfighting skills. Commanders need capability to conduct and assess training and rehearsals, using a variety of tools, appropriate for the training audience and the commander's training objectives. The Army and Joint Forces must determine how much fidelity is required for a given simulation, how to maximize training transfer from the simulated to real world, and how best to balance TADSS fidelity requirements with fiscal constraints (i.e., increased fidelity = increased program costs). The Army must develop and institutionalize design principles, protocols, and common operating environments for TADSS.

Reference: TRADOC Pam 525-5.

53. TR 97-053. Embedded Training (ET) and Soldier-Machine Interface.

Branch FOC. AD 97-005; AR 97-013; AR 97-016; AV 97-015; CM 97-001; CM 97-008; DBS 97-099; EN 97-003; EN 97-006; EN 97-030; FA 97-015; SP 97-005; SP 97-018; SP 97-020; TRD 97-013; TRD 97-008.

Description: Capability to design training systems into or add training systems to operational systems to enable soldiers to train using organic equipment while in the field or at homestation. The objective embedded training system(s) will provide the cues necessary to train individual and collective skills; allow the system to participate in force-on-force exercises through embedded tactical engagement simulation and instrumentation; and interoperate with Army Battle Command System (ABCS) platforms and CTC instrumentation systems. Near term requirements include integrating ET functions within current warfighting systems. Capability to provide soldiers with new equipment systems designed to optimize human performance. Soldiers must be able to use new equipment systems quickly, easily, and effectively with only the minimum essential new equipment training, sustainment training, experience using the equipment, or performance support systems. Capability must extend to operation of equipment under high workload and high stress conditions (i.e. noise, motion, sustained operations), when performance problems often occur. Training and performance support systems must also be human-engineered for ease of use by soldiers.

References: TRADOC Pam 525-5; TRADOC Pam 525-60; TRADOC Pam 525-70, TRADOC Pam 525-200-3.

54. TR 97-054. Virtual Reality (VR).

Branch FOC. AR 97-013, AR 97-016; AV 97-016; CH 97-003, CH 97-010; CM 97-001, CM 97-008; DSA 97-029; EN 97-003, EN 97-030; FA 97-015, FA 97-037; MI 97-011; MMB 97-020; SP 97-005, SP 97-018, SP 97-020; TRD 97-014.

Description: Capability to use advanced simulation as a means of providing cost-effective, safe, realistic, versatile and accessible training to achieve proficiency in critical combat skills. Numerous factors influence the requirement for this capability, including:

a. Environmental constraints on training.

b. Reduced range and exercise areas.

c. Training safety concerns, pressure to trim OPTEMPO and ammunition budgets.

d. The need to rehearse missions on the terrain and under the conditions that simulate the next deployment as closely as possible.

e. The need for training to be versatile enough to change in response to quickly changing individual and collective task

performance requirements.

When highly realistic training is needed to produce adequate training transfer, but field training or on-the-job training is not feasible, trainers need the capability to provide training with the required level of realism through other means. Similarly, when field training or on-the-job training can not adequately replicate the operational environment/ situation soldiers are facing, trainers must have a viable alternative for provision of truly realistic training/mission rehearsal. Realistic, advanced simulation capabilities are also critical to train/mission rehearse tasks that require multiple repetitions to achieve proficiency when repetitions would not otherwise be possible. The capability to provide highly realistic training through means other than on-the-job or field training is needed in numerous areas of individual and collective skills training including training for dismounted soldiers, maintenance training, training of equipment operation, battle staff and small group leader training. Trainers must be capable of easily reconfiguring advanced simulations to meet training/mission rehearsal requirements of the immediate contingency. Capability to train/mission rehearse tasks realistically within advanced simulation also requires realistically simulated friendly and opposing forces.

References: TRADOC Pam 525-5; TRADOC Pam 525-75, paragraph 4-2 (a-f).

55. TR 97-055. Live, Virtual, and Constructive Simulation Technologies.

Branch FOC. AR 97-013; AR 97-016; AV 97-017; CH 97-010; DSA 97-029; EN 97-003, EN 97-030; FA 97-015; MMB 97-020; SP 97-005, SP 97-018, SP 97-020; TRD 97-015.

Description: Capability to provide commanders homestation and deployable training systems providing targetry, tactical engagement simulation, and training, analysis, and feedback capabilities, similar to those provided at the Army's Combat Training Centers. These systems must interoperate with CTC instrumentation systems, virtual and constructive simulation systems, and ABCS systems. Tactical engagement simulation and future CTC instrumentation systems must leverage current capabilities provided by MILES, SAWE-RF, and MILES II; and incorporate current and future systems that must be represented in the live simulation environment (i.e., embedded training systems, electronic warfare systems, future weapons systems, and future munitions).

Reference: TRADOC Pam 525-5; TRADOC Black Book No. 4, pp. 9-24.

56. TR 97-056. Synthetic Environment.

Branch FOC. AR 97-013, AR 97-016; AV 97-018; DSA 97-029; EN 97-003, EN 97-030; MI 97-011; MMB 97-020; SP 97-005, SP 97-018, SP 97-020; TRD 97-016.

Description: Capability to provide training, at different levels (i.e. platoon through brigade), at different geographic locations, using different simulation systems, on an interactive basis. Future simulation systems, instrumentation systems, and ABCS platforms must be developed that operate (and interoperate) using common terrain, weather, and object databases, accurately represent atmospheric effects, and provide visual displays that are consistent with user requirements at all levels.

References: TRADOC Pam 525-5; TRADOC Pam 525-70; TRADOC Pam 525-75, paragraph 4-2 (a-f); TRADOC Black Book No. 4.

57. TR 97-057. Modeling and Simulation.

Branch FOC. AD 97-013; AR 97-013; AR 97-016; AV 97-013; CM 97-001; CM 97-008; EEL 97-021; EN 97-003; EN 97-030; FA 97-015, MMB 97-018; MMB 97-020; SP 97-005; SP 97-018; SP 97-020; TRD 97-015; TRD 97-019.

Description: Capability to model/simulate existing and future Army and Joint Forces organizations, doctrinal concepts, training systems and approaches, weapons systems, and other entities for use in training, training development, mission planning and rehearsal, combat development, materiel development, and experiments.

References: TRADOC Pam 525-5; TRADOC Pam 525-60; TRADOC Pam 525-70; TRADOC Pam 525-200-2; TRADOC Black Book No. 4.

Chapter 3

Branch/Functional Unique Future Operational Capabilities

Branch/Functional Unique FOCs are those FOC submissions that offer unique capabilities for a particular TRADOC proponent. The TRADOC proponent is responsible for ensuring the FOC is reviewed and updated annually.

3-1. Chaplain School.

CH 97-011. Religious Support Projection.

Description: Capability to project religious

support (e.g. rites, sacraments, emergency ministrations, worship, counseling, education, etc.) to soldiers positioned outside physical contact with religious support elements on a dispersed battlefield. This capability is critical to religious support for independent company-size (or smaller) units conducting split-based operations, or attached to multinational forces devoid of religious support.

Reference: TRADOC Pam 525-78.

Previous OCR: None.

3-2. Chemical School.

CM 97-010: Advanced Flame and Incendiaries.

Description: The capability to employ target degrading, obscuring and defeating advanced incendiary materials/effects throughout the battlefield. Must provide electro-optical (multi-spectral) obscuration and cause dissipation or attenuate other battlefield obscurants. Must be accurately deployable in a soldier: carried, mounted, dismounted, projectable and/or space-based configuration. Must be safely transportable and employable by a minimum of non-specialized soldiers. Must provide training munitions or simulations techniques.

References: TRADOC Pam 525-3, pg. 16, paragraph 4g(4), pg. 20, paragraph 4h(2)(h)(4); TRADOC Pam 525-5, p. 3-12, paragraph 3-2d; p. 3-18, paragraph 3-3b(1)(a),(c).

Previous OCR: None.

3-3. Combat Service Support Battle Lab.

CSS 97-002. Containerization and Packaging.

Description: Capability to optimize package and container load configurations to cover the spectrum of distribution platforms in CONUS and in theater. Will provide cargo adaptable packaging that is recoverable, recyclable, light weight, needing little to no dunnage, and capable of being decontaminated, electronically tracked during employment and monitored for integrity and effects of adverse environmental conditions (e.g., temperature, moisture, shock, etc.).

Reference: TRADOC Pam 525-100-1, p. 11, paragraph XX.

Previous OCR: CSS02.

3-4. Early Entry Lethality and Survivability Battle Lab.

EEL 97-018. Rapid Insertion of Army Equipment and Aviation.

Description: Capability to self-deploy or preposition army aviation assets for rapid insertion during force projection operations.

References: TRADOC Pam 525-66; TRADOC Pam 525-200-2.

Previous OCR: EEL18.

3-5. Engineer School.

EN 97-001. Develop Digital Terrain Data.

Description: Capability to acquire, analyze, develop, update, and validate digital terrain data that provides a basic foundation for the common knowledge of the battlespace, which is scaleable, tailorable, timely, and relevant to the situation. This capability includes the ability to enrich terrain data with higher resolution feature and elevation data, from information collected throughout the battlespace by a wide variety of sensors and units.

References: TRADOC Pam 525-41, paragraph 1-3b, paragraph 2-5; TRADOC Black Book No. 4, pp. 20-25; Joint Vision 2010, p. 13.

Previous OCRs: BC01, BC02, BC05, BC06, BC07, DSA12, DBS11.

EN 97-002. Common Terrain Database Management.

Description: Capability to collect, catalog, warehouse, transform, update, and distribute, in real- or near-real time, large quantities of digital terrain data to provide the most up-to-date information to all users. This should include procedures for tracking data lineage, synchronizing data updates from various sources, and verifying the accuracy of data updates. It also includes the ability to share data horizontally and vertically on the battlefield, and exchange data updates between terrain data producers in CONUS or the theater and the terrain data managers/users.

References: TRADOC Pam 525-41, paragraph 1-3b, paragraph 2-5, 4; TRADOC Black Book No. 4, pp. 20-25; Joint Vision 2010 p. 13.

Previous OCRs: BC05, BC07, DSA12, DBS11.

EN 97-014. Provide, Repair, and Maintain Logistics Facilities.

Description: Capability to procure, construct, repair, and maintain logistics facilities for supply, maintenance, and ammunition storage. This capability includes repair of damages by hostile fire and damage remediation.

References: FM 5-104 (pp. 78-84); TRADOC Black Book No. 4, p. 25; Joint Vision 2010, p. 24.

Previous OCRs: CSS21, EEL08, EEL16.

EN 97-015. Procurement and Production of Construction Materials.

Description: Capability to rapidly obtain a supply of suitable construction materials as a basis for constructing, maintaining, and/or repairing facilities in the theater of operations. This capability includes obtaining materiel through the standard military supply system, procurement from local manufacturers or producers, extracting local natural resources or local military processing. Local extraction requires the ability to excavate, load, and transport natural raw materials from borrow pits; establish quarries to recover rock by drilling and blasting; or conduct logging operations. Local processing of materials requires the ability to crush, screen, and wash rock to specific size and gradation needed for asphalt and concrete; mix and transport asphalt; and produce, mix, and transport concrete.

References: FM 5-104, pp. 7-14; Joint Vision 2010 p. 24.

Previous OCRs: CSS17, EEL16, EEL 17.

EN 97-026. Fire Protection.

Description: Capability to provide rapid fire fighting, and emergency rescue to high risk supply facilities, forward area rearm and refuel points (FARPS) and Army aviation facilities, and provide knowledge and expertise in fire prevention.

Reference: None.

Previous OCR: CSS21.

EN 97-028. Engineering Support to Non-military Operation.

Description: Capability to provide engineering services to humanitarian operations, relief to natural or man-made disasters, and support to civil authorities. Includes counter-drug operations, and post conflict remediation.

References: TRADOC Black Book No. 4, p.16; Joint Pub 4-04.

Previous OCRs: CSS03, CSS04.

3-6. Finance.

FI 97-001. Military Pay.

Description: Capability to quickly establish a client/server automation system in finance units at echelons detachment and above. System will need to provide the capability to locally produce leave and earning statements, query and update military pay records for all services. It will also be compatible with automated identification technology (MARC and others). The future system will be integrated with AG (personnel) databases. It will allow for split-based operations (Split Operations) resulting in the smallest possible PSS footprint on the battlefield.

Reference: TRADOC Pam 525-200-6, p. 6 paragraph 3-3 c. (2) and p.7, paragraph 3-3 c. (3).

Previous OCR: CSS24.

FI 97-002. Civilian Pay.

Description: Capability to quickly establish a client/server automation system in finance units at echelons detachment and above. System will need to provide the capability to query and update DOD civilian employee pay records. The future system will be compatible with automated identification technology and will support all future Defense Finance and Accounting Service (DFAS) developed software. This system promotes split operations by limiting the need to deploy DFAS assets.

Reference: TRADOC Pam 525-200-6, p. 6, paragraph 3-3 a.

Previous OCR: CSS24.

FI 97-005. Travel Support.

Description: Capability to quickly establish an automation system capable of "stand alone" or client/server operations at echelons battalion and above. The system will allow

deployed personnel to provide travel support to service members and civilians. It must have the capability to process travel advances made during noncombatant evacuation operations. This includes instances when the State Department issues noncombatant evacuation orders for U.S. citizens in the host nation or target country. The system must be capable of recording all travel settlements, and advances and travel. The future system must also capture all cost associated with authorized travel and update appropriate resource management and pay databases via digital communications.

Reference: None.

Previous OCR: CSS24.

FI 97-006. Disbursing.

Description: Capability to quickly establish an automation system capable of "stand alone" or client/server operations at echelons detachment and above. The system would track all disbursements (cash, check, foreign currency, or EFT) and collections. The future system must be compatible with automated identification technology and be fully integrated with pay and RM systems.

Reference: None.

Previous OCR: CSS24.

FI 97-007. Accounting.

Description: Capability to quickly establish a network of accounting computers using wireless communications technologies at echelons above battalion. The system will capture the use of all appropriated and non-appropriated funds. The timely accurate accounting data provided by this system will help commanders meet their responsibility for stewardship of public resources. This data will help ensure rapid and accurate reimbursement of OMA funds used to finance deployments. This system will be fully integrated with DFAS systems and supports split operations.

Reference: None.

Previous OCR: CSS24.

3-7. Medical.

MD 97-001. Patient Evacuation.

Description: Required capability of the Army Medical Department (AMMED) is to provide a seamless air and ground medical evacuation system throughout the operational spectrum. The system must have the capability to provide continuous support in all environmental conditions, communicate with supporting and supported units, maintain situational awareness on the future digitized battlefield, be modular in design, and possess the capability to provide state of the art medical care compatible with the medical structure on the battlefield. Medical evacuation provides a means of reducing morbidity and mortality through timely movement of casualties under continuous medical supervision and care. Furthermore, the system must allow for coordination, integration, and be compatible with joint and combined forces. Medical evacuation must be capable of operating in an nuclear, biological, chemical (NBC) contaminated environment.

a. Aeromedical evacuation. The changing nature of modern warfare demands that medical evacuation platforms have communication, navigation, and situational awareness capabilities compatible with the forces they support. It also demands the medical capability to provide treatment and sustain casualties during evacuation over greater distances. Future aeromedical evacuation platforms must have the capability to visually acquire patients at night or during periods of degraded visibility, and positively identify casualty and casualty pick-up points, as well as maintain threat avoidance. As future options force the Army to leave large hospitals in the rear and push resuscitative surgery forward, aeromedical evacuation aircraft must be capable of providing enhanced en route medical care and monitoring capabilities. Medical evacuation aircraft must possess the capability to effectively operate on the future digitized battlefield.

b. Ground evacuation. Capabilities required in the future ground medical evacuation platforms include expansion of treatment space for the medical attendant to provide en route care, ability to keep pace with the supported force, accessible storage of medical equipment, and improved medical capabilities of the vehicle. Those capabilities include an on board oxygen production unit, a medical suction system, improved litter configuration, and provisions for a medical mentoring system. Capabilities required in the treatment role include providing adequate space and equipment configuration for a trauma treatment team to provide care to combat casualties inside of the vehicle under the protection of armor.

References: TRADOC Pam 525-50, paragraph 2-3d(1), paragraph 3-1, paragraph 3-3b.

Previous OCR: CSS10.

MD 97-004. Combat Health Support in a Nuclear, Biological, Chemical (NBC) Environment.

Description: Capability required to perform medical support operations in NBC environments. Medical doctrine needs to incorporate the full range of NBC threat, from peacetime regulatory limits to all out war. NBC environments seriously degrade the ability to triage, diagnose, and treat casualties while in protective posture. Each NBC hazard presents unique, well-documented injuries, but when used in combination or combined with conventional insults or disease non-battle injuries, the injuring effects are not fully understood.

References: FM 3-5, Chapter 9; FM 8-10-7; TRADOC Pam 525-50, paragraph 2-2d; Medical Readiness Strategic Plan-2001, Chap. 12.

Previous OCR: CSS13.

MD 97-005. Far-Forward Surgical Support.

Description: Capability to provide forward deployed emergency resuscitative surgery across the range of military operations, to include NBC environments. Capability to project surgery forward increases as a result of the extended battlefield. Capability to provide urgent resuscitative surgery for casualties who require surgical stabilization prior to further evacuation. Capability to provide improved shelter systems that allow for both tactical and strategic deployability, quick set-up, and a rapid-response surgical capability under environmentally controlled conditions.

Reference: TRADOC Pam 525-50, Paragraph 3-3C.

Previous OCR: CSS08.

MD 97-006. Hospitalization.

Description: Capability to provide full hospital care across the range of military operations, to include NBC environments. Hospital personnel must provide definitive care for return to duty or stabilizing care for evacuation out of theater to an increasingly diverse population of deployed personnel from all the uniformed and government services. In addition, combat hospitals must care for refugees and displaced civilians as the result of combat, civil strife, or natural disasters. Required capabilities include inpatient care, outpatient care, and consultant services in the medical, surgical, obstetrical, gynecological, pediatric, geriatric, and NBC arenas. Combat hospitals must organize as effectively augmented, fully functional modules to rapidly deploy and operate forward, independently of the main hospital unit.

Clinical Systems such as cardiac resuscitation, ventilation management, intravenous fluid administration and surgery, and anesthesia equipment must all possess the capability to keep pace with deployability requirements as well as the ever increasing disease and injury spectrums found in the area of operation. Integral to clinical systems are the skills of the hospital staff themselves. Senior medical leadership must possess the capability of staffing combat hospitals with personnel who demonstrate the unique skills needed for the particular type of mission. Future capabilities of all hospital personnel must include keeping pace with changing mission requirements, functioning in an NBC environment, and caring for decontaminated NBC casualties.

Reference: TRADOC Pam 525-50, paragraph 3-3c.

Previous OCR: CSS09.

MD 97-007. Preventive Medicine.

Description: Capability to improve soldier sustainability through the prevention of endemic diseases; injury from radiation environmental, occupational, and biological or chemical warfare agent hazards; or from combat stresses. It must be capable of deploying a modular support package to provide comprehensive support, adaptable to a full range of military operations. Will provide rapid and comprehensive environmental and occupational monitoring to assess acute and chronic health risks encountered during military operations. Will provide versatile, mobile, and enhanced disease vector control support to reduce vector-borne diseases in a theater of operations. Must be capable of integrating disease surveillance from the forward line of troops (FLOT) to CONUS.

References: TRADOC Pam 525-5, paragraph 2-1a(8); TRADOC Pam 525-50, paragraph 2-2d.

Previous OCR: CSS06.

MD 97-008. Combat Health Logistics Systems (CHLS) and Blood Management.

Description: Capability to support force projection Army in multiple locations through split-base operations. The CHLS must be modular in design and anticipatory to provide the necessary flexibility and mobility. Division-level class VIII support includes receipt, storage, processing, disposal, and distribution of medical materiel; unit-level medical maintenance; receipt of type O red blood cells; and single optical fabrication and repair. Corps and echelons above corps support includes receipt, storage, processing, contracting, disposal, and distribution of medical materiel, unit and direct support/general support level medical maintenance; blood distribution and the limited capability to collect blood; single and multi-vision optical fabrication and repair; medical gas distribution; and the building of medical assemblages/resupply packages. The CHLS must centrally manage critical class VIII items, patient movement items, blood products, medical maintenance, and class VIII contracting. It must be capable of coordinating logistics and transportation support with non-medical logistics organizations for all medical logistics activities within an area of operations. It must be able to support reception operations for prepositioned afloat medical materiel at ports of debarkation. The CHLS must employ state-of-the-art standardized medical logistics information management and

Chapter 4

TRADOC Proponents Future Operational Capabilities Requirements

4-1. Air Defense Artillery.

AD 97-001. Deployability.

Description: Capability for Air and Missile defense systems and their support elements to rapidly deploy and employ while keeping pace with future technological advances in air, land, and sea transport. Premium consideration should be made for efforts which produce small, common Army platforms exploiting breakthroughs in remoted, distributed, non-dedicated architectures and robotics. This FOC will follow the rules of multi-function/role, will not require increased force structure, and will represent a lower cost solution over the life cycle of the system.

Reference: TRADOC Pam 525-5, p.3-13, paragraph 3-2d(5).

Previous OCR: None.

AD 97-002. Mobility.

Description: Capability for air and missile defense systems and their support elements to increase their tactical mobility. Future capabilities must include systems with tactical mobility comparable to the supported force. This provides survivable air defense in the close battle area. This FOC will follow the rules of multi-function/role, will not require increased force structure, and will represent a lower cost solution over the life cycle of the system.

Reference: TRADOC Pam 525-5, p.4-7, paragraph 4-1(e), 4-2.a.

Previous OCR: None.

AD 97 - 003. Munitions.

Description: Capability for systems to provide over-matching lethality against current and future systems of potential adversaries. Technological excursions will address defense at all levels from the maneuver force to the Continental United States. Firepower must be enhanced in terms of lethality. Firepower capabilities for future munitions should include technologies that enhance missile propulsions to provide increased range and kinetic kills, seeker technology to allow for improved line of sight and non-line of sight kills, and the evolution from SMART to BRILLIANT munitions with fully autonomous capabilities. Hypervelocity rounds should allow precision guidance hit to kill intercepts. All future munitions capabilities should incorporate technologies that allow for high fire power with low cost per kill interceptors. Directed energy weapons (DEWs) technology should be explored as munitions. DEWs should be capable of destroying or disabling air, space, or surface threats to the Force. DEWs should operate on a multidimensional, non linear, distributed battlefield and have all weather operational capabilities. This FOC will follow the rules of multi-function/role, will not require increased force structure, and will represent a lower cost solution over the life cycle cost of the system.

Reference: TRADOC Pam 525-5, p.4-7, paragraph 4-1e, 4-2b.

Previous OCR: None.

AD 97-004. Fused and Correlated Situational Awareness (Real Time, 3D, Friendly and Enemy, Terrain, Weather).

Description: Capability for real time fusion and correlation of digitized information from all types of sources (air, ground, sea, and space) that provides the commander the knowledge required to execute coordinated air and missile defense. This will result in timely, accurate, and relevant friendly and enemy situational awareness knowledge of all dimensions on a common map with associated status information. This information includes mapping and logistics; projected battlefield situation; terrain and weather, command and control information, precision location and tactical decision aids. The integrated common picture must be sent to multiple locations, both vertically and horizontally to allow for real time target acquisition. C2 systems will be interoperable with joint, interagency, and multinational members of the projection force. The capability is needed to enable a critical, timely and near instantaneous decision

process with associated mixed netted, distributed, and non-dedicated air and missile defense systems. This capability is needed to maintain positive centralized control of forces operating in the third dimension of the expanded battlefield to allow for maximum employment of weapon systems while protecting friendly forces. This information should be available to commanders, planners, and executors while on the move. This FOC will follow the rules of multi-function/role, will not require increased force structure, and will represent a lower cost solution over the life cycle cost of the system.

Reference: TRADOC Pam 525-70, p.5, paragraph 3-3b(3).

Previous OCR: None.

AD 97-005. Decision Support Software and Tactical Planning Aids.

Description: Capability for expert systems, decision aids, and artificial intelligence, faster processor technologies to reduce engagement times and enhance the planning process. The process must provide automated planning aids must allow for enhanced IPB that reduces the staff and commander's workload. This will assist the commander's ability to control the tempo of the battle and stay within the enemy's decision making cycle. This capability must operate enroute and on the move. Embedded training and simulation tools must be incorporated into the decision support software, for commander/staff training, mission rehearsal, course of action analyses, and combat service support functions. This FOC will follow the rules of multi-function/role, will not require increased force structure, and will represent a lower cost solution over the life cycle cost of the system.

References: TRADOC Pam 525-70, p.6, paragraph 3-3b, p.8; paragraph 3-3d, TRADOC Pam 525-60, p.7, paragraph 3-2e(2).

Previous OCR: None.

AD 97-006. Classification, Discrimination, Identification, and Correlation of Information.

Description: Capability to classify, discriminate, identify, and correlate information of threat air and missile defense platforms must reside within command and control nodes, sensors, and weapons platforms. This will facilitate using the entire kinematics range of current and future weapons. Higher considerations will be made toward technologies which are passive and non-cooperative. In addition, once a hostile identification has been made the sharing of this situational awareness should allow for slave to cue engagements of the hostile threat targets while ensuring fratricide avoidance. This FOC will follow the rules of multi-function/role, will not require increased force structure, and will represent a lower cost solution over the life cycle cost of the system.

Reference: TRADOC Pam 525-5, p.3-12, paragraph 3-2c(6).

Previous OCR: None.

AD 97-007. Sensors.

Description: Capability of future sensors to "know more and to know it sooner". This will require the exploitation of future technology emphasizing affordable, enhanced sensing through signal processing, increased use of multidimensional phenomenology, continued improvement in sensor systems and component technologies, increased connectivity and functional integration, rapid data exploitation, and automatic target recognition. Emphasis will be placed on developing systems which will facilitate the Non-Line of Site engagement through elevating the sensor. Sensors should not only provide air situational awareness but also land and surface situational awareness. This FOC will follow the rules of multi-function/role, will not require increased force structure, and will represent a lower cost solution over the life cycle of the system.

Reference: TRADOC Pam 525-5, p.3-11 paragraph 3-2c(2).

Previous OCR: None.

AD 97-008. Air and Missile Defense Systems Survivability.

Description: Capability to protect air and missile defense systems to include space-based assets should enhance overall force survivability. Weapons and information systems should be protected from electronic warfare, high-power microwave, lasers, anti-radiation missiles, (ARMs) information integrity violations, and anti-directed energy seeking kinetic munitions. In addition, survivability can be accomplished through making the system hard to find, track, and kill (insensitive), or through the use of robotics. Survivability for air and missile defense information systems should be

accomplished through the use of data encryption and encoding schemes, anti-virus (vaccines) and antidotes once infected. Information security and operational security should be designed for future information operation systems. This FOC will follow the rules of multi-function/ role, will not require increased force structure, and will represent a lower cost solution over the life cycle cost of the system.

Reference: TRADOC Pam 525-5, p.4-7, paragraph 4-1e, 4-2c.

Previous OCR: None.

AD 97-009. Robotics.

Description: Capability for air and missile defense systems to be operated through remote control methods resulting in unmanned platforms. Systems should be more mobile, compact, and able to survive more intense environments than manned platforms. In addition these systems should also be able to provide greater firepower than existing systems while also be able to seamlessly integrate into the air and missile defense system. This FOC will follow the rules of multi-function/role, will not require increased force structure, and will represent a lower cost solution over the life cycle cost of the system.

Reference: TRADOC Pam 525-5, p.4-9, paragraph 4-1e., 4-2f(4).

Previous OCR: None.

AD 97-010. Air and Missile Defense Sustainability.

Description: Air and missile defense systems to have built-in-test equipment integrated into real time remote diagnostics systems. In addition these systems should have the capability to perform self repair and/or remote maintenance. Consideration should be given to future systems to have common parts and maintenance equipment. Air and missile defense munitions should use standard handling equipment and be reduced in size for ease of delivery. This FOC will follow the rules of multi-function/ role, will not require increased force structure, and will represent a lower cost solution over the life cycle cost of the system.

Reference: TRADOC Pam 525-5, p 4-7, paragraph 4-1e., 4-2a.

Previous OCR: None.

AD 97-011. Early Warning.

Description: Capability to provide day/night and all weather early warning and provide targeting data to weapon systems against all air and missile threats to include UAVs, fixed/rotary wing aircraft, TBMs, cruise missiles, rockets, artillery and bombs, to include systems employing stealth technologies. This FOC will follow the rules of multi-function/role, will not require increased force structure, and will represent a lower cost solution over the life cycle cost of the system.

Reference: TRADOC Pam 525-60, p.5, paragraph 3-1b(1).

Previous OCR: None.

AD 97-012. Counter Aerial and Space-based RISTA Platforms.

Description: Capability to rapidly deploy a low-cost, multi-function, day/night and all weather system capable of countering aerial and space-based reconnaissance, surveillance, target acquisition, and communications platforms. Countering these enemy systems will destroy, disable, or disrupt the aerial and space-based platforms ability to perform their missions. Weapons systems are expected to employ high-power microwave, lasers, low-cost kinetic munitions, and computer data warfare to conduct information warfare. The FOC ensures freedom of movement from surveillance and airborne/ space-borne targeting and will follow the rules of multi-function/role, will not require increased force structure, and will represent a lower cost solution over the life cycle cost of the system.

Reference: TRADOC Pam 525-5, p.2-7, paragraph 2-2h(3).

Previous OCR: None.

AD 97-013. Live Virtual Battlefield.

Description: Capability to exploit the integration of the live and virtual battlefield. The next generation weapon system is defined as any weapon from the individual infantryman to the most complex DEW that is used to counter hostile forces on the future battlefield. Future weapon systems will operate in a virtual environment. With the increased use of laser weapons the potential for fratricide is certain. Day, night, weather, and battlefield obscurants become irrelevant to weapons systems in the virtual environment. With improvements in sensor technology, and in the development and dissemination of situational awareness the possibility for a soldier to operate in a synthetic environment can be realized. Technological advancements must provide the soldier a standardized device capable of aiming his individual or crew served weapon (whatever it may be) at symbiology displayed in a virtual display helmet. The symbiology is based on a cue from sensors to a wearable weapon system fire control computer which will perform automatic target identification, lead angle, and super elevation computations for his weapon. The requirement to "see" the enemy is not as relevant as being able to sense him. The capability to assign targets to individual weapon systems to maximize firepower is necessary. In the event the individual displays are disabled or countered, field reparability is required. Equal to the need for every soldier on the battlefield to carry a chemical protective mask the future soldier will require wearable displays in order to operate on a live virtual battlefield.

References: TRADOC Pam 525-5, p.3-20, paragraph 2-3b(1), paragraph 3-3c(4); 4-1b(3), TRADOC Pam 525-70, p.5-6, paragraph 3-3a(4), paragraph 3-3b.

Previous OCR: None.

4-2. Armor.

AR 97-001. Mounted Firepower.

Description: Future systems must possess overmatching lethality against all projected threat ground systems. This includes improved probabilities of hitting and killing heavily protected systems while moving, maneuvering, or stationary (both the firing and target systems), in all environments (to include natural and man-made obscurants, clutter, darkness, and poor weather), at extended ranges. The capability to automatically detect, identify, track, and assess damage against targets will improve system and force lethality. We must be able to defeat emerging threat protective systems that may include advanced reactive and/or passive armors, signature management, electronic countermeasures, or active protection systems. Inherent within this capability requirement is the need to destroy targets within and beyond firing vehicle line of sight, directed by cueing from on board or off board sources. Similarly, systems must have the capability to designate targets for servicing by other firing platforms. Also, system lethality must be more efficient in terms of reduced ammunition requirements (fewer rounds required per kill) and reduced crew interaction requirements (workload). Lethality systems must be more reliable, allowing the use of unmanned or remotely operated weapons systems.

References: TRADOC Pam 525-5, pp. 3-9 and 10, paragraph. 3-2b(7); 4-7, paragraph. 4-1e; TRADOC Black Book No. 4, p.23, paragraphs 1 and 2

Previous OCR: MTD01.

AR 97-002. Mounted Mobility.

Description: Future systems must possess the tactical, operational, and strategic mobility and agility required to survive and dominate the maneuver battle. This includes the ability to rapidly move cross-country and on roads, in all natural and man-made environments to include water obstacles and surf zones. Key components of tactical mobility include speed, acceleration, obstacle (including mines) detection and avoidance, NBC detection and avoidance, and vehicle suspension systems capable of stabilizing the platform to within structural, crew, and weapons specific requirements. Operational mobility includes reduced resupply frequencies, fewer required maintenance or rest halts, similar tactical mobility levels for all members of the organization, and reduced infrastructure (such as bridge or tunnel) constraints. Strategic mobility includes sea, air, rail, and road transportability as well as reduced logistical requirements. Future systems must be able to rapidly deploy into immature theaters of operations and execute missions immediately, with little or no infrastructure or logistical support. Enhanced mobility adds greater flexibility to the force, allowing it to take action faster than an enemy can react. It also gives the commander more options in terms of friendly courses of action. This capability increases the lethality and survivability of the force, allowing quicker results on the battlefield with fewer friendly casualties.

References: TRADOC Pam 525-5, p.3-9 and 10, paragraph. 3-2b(7); 4-7, paragraph. 4-1e, TRADOC Black Book No. 4, p.23, paragraph 1 and 2.

Previous OCR: MTD03.

AR 97-003. Integrated Survivability For Mounted Systems.

Description: Future systems must possess the capability to survive against the full spectrum of battlefield threats. Integration of an optimized suite of detection, hit, penetration, and kill avoidance measures is necessary to achieve this. Systems must be capable of surviving against threats attacking at any aspect around, above, or below the system. Sensor and countermeasure combinations providing this capability must be able to operate autonomously, while retaining semi-automatic and manual modes. Optimization of the suite requires the proper combination of signature management, sensors, countermeasures, such as smoke/ obscurants/active protection, and armors, all developed and integrated as part of the system's basic design, to reduce cost, maximize effectiveness, and minimize system level burdens. Incorporation of this capability will greatly enhance force effectiveness on the battlefield. Friendly systems will be harder to see, hit, or kill, which reduces casualties and allows faster mission accomplishment.

Reference: TRADOC Pam 525-5, p. 4-7, paragraph 4-1e(2); 3-10, paragraph 3-2b.(7).

Previous OCRs: MTD07, MTD08, MTD09, MTD10.

AR 97-004. Mounted Target Acquisition and Identification.

Description: Future systems must possess superior target acquisition capabilities to include information/intelligence awareness, and advanced fire control, while anticipating the need to do these missions with a reduction in manpower. This includes an increase in spoken-human machine dialogue/commands to accelerate information flow and the target acquisition process. Future systems must have the ability to operate from a moving or stationary platform, and detect and identify threat forces at extended ranges. Targets include personnel, light and heavily armored vehicles, rotary and fixed wing aircraft, and bunkers. Targets must be rapidly detected, recognized by type, and identified as friend or foe without the target's knowledge, at ranges beyond the threat's ability to detect. This capability must not be degraded by countermeasures or environmental conditions (such as weather, day/night, or the most cluttered battlefield). Specialized reconnaissance units will require higher resolution target acquisition for the extended ranges in their operations. BDA must be compiled either automatically or by the crew quickly to prevent endangering the system and avoid re-engaging targets that have already been killed or disabled. automatic target recognition (ATR) capability is needed to aid in rapidly identifying enemy forces. Sensors at every level will be critical to the target acquisition process and must provide real time information to commanders for immediate decisions on a fluid battlefield using available communications systems. Sensors must have the capability to allow for the use of remotely operated weapon systems with sufficient resolution and low false alarm rates. Future systems must be able to deploy or carry sensors that can be locally or remotely deployed, emplaced, and controlled. Enhanced target acquisition is critical to the force's ability to positively detect, track, engage, and kill targets despite the most cluttered battlefield or sophisticated foreign camouflage systems. Failure to improve over current levels prevents effective engagement of enemy targets and reduces the force's standoff capability.

Reference: TRADOC Pam 525-5, p. 3-6, paragraph 3-2a(4); 3-7, paragraph 3-2a(10); 3-9, paragraph 3-2b(5); 3-10, paragraph 3-2b(7).

Previous OCRs: MTD02, MTD19.

AR 97-005. Advanced Propulsion.

Description: Current and future systems need improved propulsion capabilities. Future systems must be more efficient in terms of power to weight and power to volume ratios, and they must be more fuel efficient. They must be quieter and have reduced signatures and pollutant emissions. Reliability must be improved. Propulsion efficiency must translate into affordability, particularly in terms of possible propulsion upgrades to existing systems in the near or mid term. In the mid term, advanced propulsion should include the capability for vehicles (especially in the reconnaissance role) to operate for periods of time without the prime power source running. This capability must be provided without any degradation to the other capabilities on the system, such as sensors, fire control, etc. The capability to operate without the main engine running will decrease susceptibility to detection, thereby increasing force survivability. In the far term, propulsion systems must be integrated with advanced weapons, electrical generation and storage systems, and mechanical or non-mechanical drive train components. Improved propulsion systems allow a smaller logistical tail and enhance force mobility and deployability. They may also reduce force operating costs through increased efficiency.

Reference: TRADOC Pam 525-5, p.3-9 and 10, paragraph. 3-2b(7); 4-7, paragraph. 4-1e.

Previous OCR: MTD04.

AR 97-006. Mounted Forces Situational Awareness.

Description: Mounted systems require accurate and real time information of friendly and enemy locations, terrain, and unit status. This critical battlefield information when assimilated into a scaleable, common relevant picture of the battlefield will enhance survivability, facilitate synchronization of fires, maneuver and logistics supportability, to achieve maneuver dominance and influence battle tempo. Commanders require the capability to receive information from ground, air, and space systems necessary to visualize the entire battlefield as it exists in real time. Platform systems must also be integrated with vehicular information. This information on digitized terrain, weather, man made obstacles/barriers, and early warning of NBC hazards, supports intelligence preparation of the battlefield and the staff planning process.

References: TRADOC Pam 525-66, paragraph 3-2; 3-2a(2), (3), (8); 3-2c(1); 3-2c(1); TRADOC Black Book No. 4, pp. 4, 7, 9, 15, 17, 21, 23, 24.

Previous OCR: MTD 16.

AR 97-007. Mounted Command and Control on the Move.

Description: Mounted forces, brigade and below, require robust, long range, seamless, ground, air, and space systems/sub-systems that will maximize operations, be constantly in communication with key subordinates, and establish control and alter tempo as required to seize and maintain maneuver dominance. Command and control must be maintained while both the commander and the commanded forces are on the move. Air and ground commanders must have the capability to maintain situational awareness, rapidly send and receive graphics, imagery, intelligence information, weather, and terrain information. Commanders and staffs must be able to accomplish mission planning and rehearsal while on the move and enroute to the next engagement. Communications and situational awareness must be maintained while commanders are away from their primary vehicle. Information dominance using automated decision support aids is required to assist the commander and his staff in synthesizing information, developing options, and making timely decisions. Battle command systems must be flexible enough to be integrated into mounted platforms and mobile command posts. Communications systems must be secure, reliable, compatible, and use automated processing. Communication and automation must be interoperable between joint and coalition forces for which spoken human-machine dialogue will be essential to obtaining accurate and error free interpretations without delay. Full consideration must be given to the weight, survivability, mobility, and future systems integration. New systems must not detract from the mobility, deployability or warfighting capability of the current mounted systems. Commanders and staffs must operate forward on the battlefield, from mobile, protected ground platforms, compatible with the Force XXI battlefield, that provides an environment to facilitate planning, dissemination of orders, rehearsal, visualization, and control of the battle.

References: TRADOC Pam 525-66, paragraph 2-3b(1); 3-2; 3-2a(2), (3), (9); 3-3c(1), (3)(a), (4); 4-4d(2), (8); 4-4e(2)(f)1; TRADOC Black Book No. 4, pp. 2, 4, 9, 20, 23, 24.

Previous OCRs: MTD14, MTD18.

AR 97-008. Electrical Power Generation, Storage, and Distribution.

Description: Future systems will require greatly improved electrical power generation, storage, switching, and distribution. These systems must be capable of providing the electrical power needed to support the entire range of system needs, to include multiple ultra-high power short duration pulses required for electric and directed energy armaments, sustained power for electric drive systems, or reliable, conditioned power for command and control systems. Electrical power components must be sized and packaged for efficient vehicle application, thereby requiring increased energy densities. They must not introduce human health hazards or unnecessary system vulnerabilities. Improvements are also needed for electrical power for non-mobility related operations. Current and future systems require small, rechargeable, reliable electrical storage devices with more running time than current lead acid batteries. This improvement will decrease the logistical burden on the force as well as provide for more cost effective operations. Current electrical systems are inefficient, requiring large and heavy components and cooling mechanisms. Improved electrical systems facilitate the use of advanced lethality and mobility technologies that can greatly enhance force effectiveness while reducing logistical constraints.

Reference: TRADOC Pam 525-5, p. 3-9 and 10, paragraph. 3-2b(7); 4-7, paragraph. 4-1e.

Previous OCR: MTD06.

AR 97-009. Mounted Stand-off Minefield Detection and Neutralization.

Description: Mounted platforms must possess the mobility and agility to dominate the maneuver battle and sustain

battlefield tempo. Dispersed mounted platforms must be able to autonomously and quickly detect and breach or bypass minefields. Platforms must possess integrated on-board sensors capable of detecting buried mines within limits of the platform's target acquisition capability. Mounted forces must be capable of breaching minefields while minimizing the decrease in operational tempo using manned, unmanned robotics, and integrated systems. Real time access to mine locations must be available from ground, air, and space systems for synchronization with the maneuver plan.

Reference: TRADOC Pam 525-5, paragraph 3b(2), 3-2b(7)(a), and 4-1c(2)(f)4.

Previous OCR: MTD05.

AR 97-010. Prevention of Fratricide.

Description: Mounted systems must have the capability to positively distinguish between friendly and enemy mounted and dismounted forces at extended ranges. The capability must neither increase the vehicle signature nor delay firing when a target is acquired. Systems must prevent threat emulation of a friendly signature.

Reference: TRADOC Pam 525-5, p. 4-7, paragraph 4-1e(2c).

Previous OCR: MTD12. AR 97-011. Mounted NBC Detection.

Description: Mounted platforms must possess fully automated contamination avoidance sensors that provide early warning for the full spectrum of chemical, biological, and radiological contaminants. These detectors must categorize and classify contaminants, determine the location and degree of the contamination, and possess sufficient sensitivity to permit a maneuver force to avoid contaminated areas. The detectors must provide immediate warning to platform crews and generate digital information for processing and information sharing across battlefield operating systems.

Reference: TRADOC Pam 525-5, paragraphs 2-3b(2), 3-2b(7)(a), and 4-1c(2)(f)4.

Previous OCR: MTD13.

AR 97-012. Mounted Soldier Individual Equipment.

Description: Mounted crewmen require an integrated set of clothing and equipment that is ergonomically compatible with fighting from a ground platform. Mounted soldier clothing must provide light weight NBC, flame, and environmental (cold, heat, rain, etc.) protection. It must provide for rapid evacuation from the vehicle if wounded, and be wearable for extended periods. Mounted soldier equipment must provide light weight ballistic, NBC, and direct energy weapon protection; off-vehicle radio communications to on-board crewmen; off-vehicle planning using on-board systems; and off-vehicle warning from on-board sensors.

Reference: TRADOC Pam 525-66, paragraph 4-1e(2)(c), paragraph 4-7.

Previous OCR: MTD11. AR 97-013. Embedded Training and Mission Rehearsal for the Mounted Force.

Description: Mounted systems require embedded training and rehearsal capabilities. Crewmen need to be able to use their actual systems for individual and collective training as well as for electronic (or virtual) rehearsals prior to combat operations. Systems must provide connectivity between combat systems as organized into doctrinally correct combined arms teams at all echelons (brigade and below). They must be able to integrate operational situational information and battle plans into pre-mission rehearsals. Embedded training allows crews to truly "train as they fight," and offers potential cost savings by eliminating the need for stand-alone training devices. This capability will provide improved crew performance, enhance standardization, and allow crews to conduct precision gunnery training in conjunction with tactical training. Advanced, spoken human-machine dialogue interactive trainers for mounted ground force technologies must possess the ability to conduct simultaneous interactive training for the total force. Embedded systems must not burden the host platform in terms of cost, size, complexity, or reliability.

Reference: TRADOC Pam 525-5, p.3-9 and 10, paragraph. 3-2b(7); 4-7, paragraph 4-1e.

Previous OCRs: MTD17, TRD01. AR 97-014. Embedded Automated Direct Fire Planning.

Description: Direct fire mounted forces require the capability to automatically create and rapidly disseminate direct fire plans for immediate execution. On-board position location must be linked with high fidelity digital maps, weapon systems capability, and artificial intelligence to produce a direct fire plan that optimizes platoon and company/team weapons.

Reference: TRADOC Pam 525-5, p. 3-9 and 10, paragraph. 3-2b(7); 4-7, paragraph 4-1e.

Previous OCR: MTD17. AR 97-015. Mounted NBC Decontamination.

Description: Mounted platforms and crews must possess the capability to safely and rapidly conduct initial decontamination of platform and crew using platform based systems for increased mobility/survivability. Specialized decontamination equipment must be developed which can maintain battlefield tempo and provide rapid and total decontamination of platforms and crews under various combat/environmental conditions. The equipment must not create additional hazard to the crew and cannot impair crew or platform mission capability after use.

Reference: TRADOC Pam 525-5, p. 2-3b(2), 3-2b(7)(a), and 4-1c(2)(f)4.

Previous OCR: MTD13.

AR 97-016. Simulation.

Description: Require training systems which will operate identically to the platforms systems they are replicating, and which will allow soldiers to utilize training equipment without prior training or experience. Advanced technologies are sought which will enhance virtual and constructive simulations to include live simulation instrumentation. The capability to link live, virtual, and constructive simulations from the individual mounted system to a full combined arms brigade is required. The simulation must be seamless, distributed, and interactive; provide aggregation and degradation of forces; and include advancements in methods and models for determining fidelity of requirements. Must have modules that allow expeditious validation of simulations. Must be compatible with distributed information systems (DIS). Conductivity between virtual and live training, in the laboratory or in the field, must be established. Simulation technologies must possess the capability to conduct simultaneously interactive training from the individual systems which will use spoken human-machine dialogue and will allow the user to construct his own environment as required, and without the aid of computer programmers. The user must possess this capability to make rapid changes in the training/rehearsal environment as required by the changing mission needs.

References: TRADOC Pam 525-5, p.3-2d(4);4-1b(3); TRADOC Black Book No. 4, pp. 9, 13, 17, 20, 24, 25.

Previous OCR: MTD20.

4-3. Aviation.

AV 97-001. Communications.

Description: Capability for across-theater, secure, jam-resistant, air-to-ground, ground-to-air, and air-to-air transmission and receipt of voice and data communications while in nap-of-the-earth (NOE) flight conditions in both line of sight and non-line of sight situations. Data transmission rates must be fast enough to permit rapid handover of reconnaissance reports (to include imagery and video), target data files, and similar voluminous messages. The continuous need for situational awareness data, resolution of conflicts in use of ground and air battle space for maneuver and fire, and the tethering of units to their command elements require reliable and continuous connectivity. The system must be compliant and interoperable with Army, joint, combined, coalition, and interagency voice and data message formats and transmission methodology standards. Communication systems performance should degrade gracefully rather than catastrophically when components fail or are damaged. Communication and data/information processing systems must be hardened against electromagnetic environmental effects, compromise, corruption, or degradation by the threat given the anticipated realities of information warfare in the future.

References: TRADOC Pam 525-5, p.3-3, paragraphs 3-2a, 3-2b, 3-2d, 3-2e; TRADOC Black Book No. 4.

Previous OCRs: BC01, BC02, BC06, BC07, BC08, BC09, BC10, BC11, BC20, BC22, DSA05, DSA06, DSA10, DSA13, DSA15, DSA19, DSA20, DBS17, MTD02, MTD14, MTD15, MTD16, EEL11, EEL24.

AV 97-002. Pilotage and Navigation.

Description: Capability to conduct on-demand sustained operations 24 hours a day at terrain flight altitudes and higher under obscured and low visibility conditions caused by darkness, weather, and natural and/or artificial particulate matter in the atmosphere while maintaining situational awareness. Capability to operate with "heads up - eyes out of the cockpit". Capabilities must comply with the physiological limits of crewmembers' tolerance. Capability to precisely determine real time navigational position worldwide to maximize situational awareness for obstacle/terrain avoidance, command and control functions, fratricide prevention, and to positively and effectively interface with the airspace

management systems. Position location system must be hardened, jam-resistant, and highly reliable. Situational awareness displays that include cultural features and operational graphics, and that interface with the navigational system to show current location will be required for enhanced situational awareness.

References: TRADOC Pam 525-5, p. 3-3, paragraph 3-2a, 3-2b; FM 100-13; TRADOC Black Book No. 4.

Previous OCRs: BC07, DSA06, DSA07, DSA09, DSA18, MTD02, MTD03, MTD12, MTD16, MTD19, EEL11.

AV 97-003. Mission Planning and Rehearsal.

Description: Capability to plan and rehearse aviation missions, and to re-plan when factors change, with minimum time and effort required to set up, enter, and retrieve mission data into and from the aircraft and its subsystems. Planning system must maximize the interface among mission planning systems throughout the fleet, integrate all tactical operation plans, and ensure effective joint, combined, and coalition utilization of airspace. System must support pre-flight and enroute revision of mission planning information. System must be able to communicate readily with and among supporting, supported, and adjacent mission planning systems.

Reference: TRADOC Pam 525-5, p. 3-2, paragraph 3-1b.

Previous OCRs: BC03, EEL22.

AV 97-004. Cognitive Decision Aids/Crewmember Associate.

Description: Capability to aid crew members in maintaining total system awareness and in mission management during mission execution. Allow the crew members to operate with their "eyes out of the cockpit" by monitoring internal aircraft status, assisting in communication actions, mission and route re-planning, detection of threat surveillance and tracking systems engagement, warning of missile lock-ons, and activation of countermeasures when authorized.

Reference: TRADOC Pam 525-5, p. 3-20, paragraph 3.3c(4).

Previous OCRs: DSA16, DSA17, MTD02, MTD07, MTD14, MTD15.

AV 97-005. Aided Target Acquisition and Identification.

Description: Capability to detect, recognize, classify, identify through non-cooperative methods, and prioritize both ground and aerial targets at ranges in excess of the threat's detection and weapon systems effective ranges and inside the threat's detection and response time. The targeting system must be compatible with fratricide prevention measures to include the Battlefield Combat Identification System and Identification, Friend or Foe systems. The targeting system must perform effectively day or night in adverse weather, in cluttered background environments, and in the presence of threat countermeasures to include jamming, screening, and camouflage. The system must be capable of providing accurate target location information for reporting or handover and for receiving targeting data via improved sensor to shooter links. The target acquisition system interface with the weapon systems should minimize the time needed to engage the target. The capability should include utilizing and controlling UAVs as an adjunct system for reconnaissance and targeting.

References: TRADOC Pam 525-5, p. 3-10, paragraph 3.2c(1), 3-2c(2); TRADOC Black Book No.4.

Previous OCRs: BC10, DSA09, DSA12, DSA14, DBS13, DBS14, MTD02, MTD19, EEL05, EEL12, EEL13, EEL14.

AV 97-006. Weapons Suite.

Description: Capability to rapidly destroy/neutralize a maximum number of threat ground and air systems, to include mobile short dwell-time targets, per mission at maximum range, with minimum expenditure of rounds, minimum engagement times, and with increased reliance on indirect engagement using smart munitions. This capability requires access to improved sensor-to-shooter links combined with a concomitant capability in air-launched, precision, programmable variable range munitions/missiles (some with variable dwell times) to optimize the probability of successful target engagement. When engaging targets in a line of sight mode, the weapon systems should minimize the firing aircraft's exposure to return fire. The weapon systems must be effective day or night, in high background clutter environments, and under adverse weather and obscured visibility conditions. The weapon systems must be countermeasure resistant. Weapon systems signature must be difficult for the threat to detect. The weapon systems must provide precision engagement of selected targets to minimize collateral damage. The weapon systems must be compatible with fratricide prevention procedures. Weapon system must provide a self-defense capability against

close-in, off-axis threats that appear unexpectedly.

References: TRADOC Pam 525-5, p. 3-8, paragraph 3-2b(2), 3-2b(3), 3-2b(7); TRADOC Black Book No. 4.

Previous OCRs: DSA01, DSA03, MTD01, EEL01, EEL04.

AV 97-007. Survivability.

Description: Capability to enhance aircraft and aircrew survival including, but not limited to, the following measures:

a. Passive aircraft survival by avoiding detection by the threat through the balanced use of signature reduction, low observables, and systems capable of providing warning about the total spectrum of ground and air threats. The system must provide early warning outside of the threat systems' detection and effective engagement ranges. The warning system must not be activated or degraded by the use of the aircraft's own countermeasure systems.

b. Active aircraft survival by neutralizing

threat detection and weapon systems through employment of effective active countermeasures or by attacking with rapid-reaction weapons.

c. Capability to detect and avoid NBC contamination, and to be rapidly and safely decontaminated if exposed.

d. Capability to detect and avoid natural and man-made obstacles.

e. Capability to survive ballistic impact, thermal, and overpressure effects of weapons.

f. Crash-worthiness capability to protect crewmembers and passengers from injury in aircraft accidents. Capability to minimize aircraft and systems damage in accidents.

The survival capability must function against all threat directed-energy weapons, electro-magnetic pulses, and NBC weapons to the point that the aircraft and crew can continue the mission without significant performance degradation.

References: TRADOC Pam 525-5, p. 3-8, paragraph 3-2b(2), 3-2b(7)(a), 3-2b(7)(c), 3-2d(6); TRADOC Black Book No. 4.

Previous OCRs: DSA05, MTD03, MTD07, MTD08, MTD10, MTD11, MTD13, MTD19, EEL08, EEL09.

AV 97-008. Aircraft Inter- and Intra-Theater Capability.

Description: Capability to self-deploy worldwide and be rapidly operational with minimal support upon arrival. Capability to be air-transportable with minimal preparation effort. Capability to operate in and from unimproved areas. Capability to conduct shipboard operations. Capability to operate in worldwide conditions of hot, cold, wet, and dry, and to operate in adverse conditions (blowing sand, dust, salt spray, etc.) with minimal aircraft damage or degradation.

References: TRADOC Pam 525-5, p. 3-1, paragraph 3-1(2), 3-2d(5), 3-2d(6); TRADOC Black Book No. 4.

Previous OCRs: DSA21, MTD03, MTD04, EEL18.

AV 97-009. Improved Aircraft Performance.

Description: Capability to meet mission requirements through enhanced aircraft performance (range, speed, agility, maneuverability, lift, specific fuel consumption, etc.) at terrain heights and higher. Capability to conduct long range and deep penetration missions with reduced fueling requirements. For aircraft performing air assault and utility missions, capability to lift and transport combat, combat support, and combat service support personnel and their associated equipment and supplies in an effective and timely manner to maintain the operational tempo. For aircraft performing cargo and lift missions, capability to lift and transport current and future light infantry fighting vehicles, air defense systems, artillery systems, and engineers' equipment in an effective and timely manner to maintain the operational tempo. Capability for internal cargo transport with rapid loading and unloading with minimum manpower requirements. Capability for external cargo transport with automatic hookup and sling load stabilization. Capability to perform rapid automated logistical movement of medium weight modular payloads utilizing an unmanned air vehicle capable of being controlled from air, ground, or autonomous mode. This will require a VTOL, self-deployable, capable of day/night, all weather operation. Incorporated into the system will be a cargo payload item identification system, cargo payload position location system, and/or heavy lift capability.

References: TRADOC Pam 525-5, p. 3-1, paragraph 3-1a(2), 3-2b(7)(a); TRADOC Black Book No.4

Previous OCRs: CSS17, CSS21, DSA01, DSA21, MTD03, MTD04, EEL16, EEL18.

AV 97-010. Aviation Availability and Logistic Supportability.

Description: Capability to sustain a high operational readiness/optempo rate with minimal demands on quality and quantity of maintenance manpower. To achieve this goal will require the capability to use diagnostic, prognostic, and expert system techniques to isolate and identify failures and potential failures, and to optimize the scheduling of maintenance actions for maximum reduction of maintenance costs and minimum impact on operational availability. Maintenance requirements must maximize the use of common tools and TMDE and minimize or eliminate requirements for peculiar or system-unique support equipment. Capability to reconfigure systems in response to component degradation or failure during mission execution so that the mission can be completed rather than aborted. Capability to ensure "around the clock" system availability. Capability to minimize aircraft turn-around time for refueling and rearming during combat operations to maximize optempo. To support this, a system of planned logistic support that enables precise delivery of class III and class V supplies to forward battle field locations is required. The total system must be flexible to effectively bring aircraft and supplies together in a dynamic environment where preplanned refuel and rearm points are not useable. The system must be capable of rapidly refueling multiple aircraft simultaneously. Munitions should be packaged to accommodate rapid rearming.

References: TRADOC Pam 525-5, p. 3-15, paragraph 3-2e(5); TRADOC Black Book No. 4.

Previous OCRs: CSS17, CSS18, EEL16.

AV 97-011. Aviation Battle Command.

Description: Capability to provide commanders and staff with mobile command posts that can operate both on the ground and in the air and when stationary or on the move. System must have maximum interoperability across all Army and joint C2 systems. System must be deployable, air transportable, and have the communications capability to keep the commander electronically tethered to all echelons and provide linkage to combined arms, joint and coalition sources of real time intelligence, fires, tactical air, and combat service support across the battlefield. It should have a tailorable battlefield visualization capability that allows the commander to view his area of operations as a supplement to the common picture of the battlefield and perform the necessary graphic analyses for maneuver and fires such as a detailed analysis of flight route options. The visualization capability should utilize the common picture of the battlefield along with any other map database or intelligence information necessary to accurately represent the area under consideration in sufficient detail. The command post must be configured to support all required staff functions.

References: TRADOC 525-5, p. 3-3, paragraph 3-2a(2), 3-2a(3), 3-2b; TRADOC Black Book No.4.

Previous OCRs: BC03, BC05, BC06, BC07, MTD14, MTD18, EEL24.

AV 97-012. Airspace Management.

Description: Capability to effectively manage multiple users of airspace thus minimizing conflicts and maximizing the overall successful mission accomplishment rate. This requires close integration between command and control, Army Airspace Command and Control, Army aviation, air defense, artillery, military intelligence, aeromedical support, special operations, airborne and infantry operations, mounted ground operations, sister service and coalition members operations, and possibly civilian airspace management agencies. Also requires communication/automation equipment that is compatible with these organizations and that is compliant with the Army Battle Command System/Common Operating Environment equipment and with required standards. The communications capability should meet the requirements listed previously in AV 97-001: Communications, and in AV 97-011: Aviation Battle Command. The system must be capable of rapid deployment, must be operational while mobile, and must maintain flexibility in response to an ever-changing operational situation. The system must have a real time air picture and real time communications with all airspace-user elements. The system must be able to electronically translate raw airspace data into a useable three-dimensional airspace picture and direct two-way interface into the Contingency Theater Automated Planning System for Army airspace users requiring near real time deconfliction or situational awareness of air assets. In addition to analog and digital communication, the system should support an automated capability to collect, display, and disseminate airspace control measures to all airspace users. The airspace management system must comply with Federal Aviation Administration requirements for peacetime United States operations, and be compatible with all other airspace command and control systems, including existing joint, multinational, and host nation airspace management requirements during joint or coalition exercises outside the United States.

References: TRADOC Pam 525-5, p. 3-2, paragraph 3-1a(4), 3-2a(2), 3-2a(3), 3-2b(3), 3-2c1, TRADOC Pam 525-72, TRADOC Black Book No. 4.

Previous OCRs: BC01, BC06, BC07, DSA18, MTD12, EEL11, EEL17.

AV 97-013. (Analysis): Systematic Upgrade of Constructive Combat Development Models.

Description: Capability to effect the upgrade of the TRADOC family of combat development models to adequately portray advanced sensor technology, to incorporate capabilities of aviation platforms to be linked and cued by overhead data collection efforts, and to replicate the countermeasure with which these platforms are equipped. Without replication of core Force XXI-enabling technologies, wargaming the digital battlefield is inaccurate and will not allow adequate investigation of DTLOMS solutions to Army requirements.

Reference: TRADOC Pam 525-5, p. 4-2, paragraph 4-1a(3).

Previous OCR: TRD01.

AV 97-014. (Training): Training Aids, Devices, Simulators, and Simulations (TADSS).

Description: Army Aviation must have the capability to train and sustain individual, leader, and collective warfighting skills. Units must be able to train with these TADSS utilizing a combination of interoperable live, constructive, and virtual simulation. Commanders must have the capability to conduct and assess training and rehearsals, using a variety of TADSS, appropriate for the training audience and the commander's training objectives. Additional capability is required to determine how much fidelity is required for a given simulation, how to maximize training transfer from the simulated to the real world, and how best to balance TADSS fidelity requirements with fiscal constraints (i.e., increased fidelity = increased program costs). The Army must develop and institutionalize design group principles, protocols, and common operating environments for TADSS.

Reference: TRADOC Pam 525-5, pg. 4-2, paragraph 4-1b.

Previous OCR: TRD01.

AV 97-015. (Training): Embedded Training (ET).

Description: Embedded training is a capability designed into or added onto hardware/software systems which allow the system to function as a stand-alone system or as part of a collective training system. The needed capability is an ET system(s) which will provide the cues necessary to train individuals, crews, and units in gunnery and maneuver skills; allow the system to participate in force-on-force exercises through embedded tactical engagement simulation and instrumentation and interoperate with ABCS platforms and CTC instrumentation systems.

Reference: TRADOC Pam 525-5, p. 4-3, paragraph 4-1b(3).

Previous OCR: TRD01.

AV 97-016. (Training): Virtual Reality.

Description: The Army must seek virtual reality solutions to provide ET capabilities for operators and maintainers of Army aircraft. The Army must have the capability to use advanced simulation as a means of providing cost-effective, safe, realistic, versatile, and accessible training to achieve proficiency in critical combat skills. Numerous factors influence the requirement for this capability, including: (a) environmental constraints on training, (b) reduced range and exercise area, (c) training safety concerns, (d) pressure to trim OPTEMPO and ammunition budgets, (e) the need to rehearse missions on the terrain and under the conditions that simulate the next deployment as closely as possible, and (f) the need for training to be versatile enough to change in response to quickly changing individual and collective task performance requirements. The capability to provide highly realistic training through means other than on-the-job or field training is needed in numerous areas of individual and collective skills training including training for dismounted soldiers, maintenance training, training of equipment operation, battle staff and small group leader training. Trainers must be capable of easily reconfiguring advanced simulations to meet training/ mission rehearsal requirements of the immediate contingency. Capability to train/mission rehearse tasks realistically within advanced simulation also requires realistically-simulated friendly and opposing forces.

Reference: TRADOC Pam 525-5, p. 4-3, paragraph 4-1b(3).

Previous OCR: TRD01.

AV 97-017. (Training): Live, Virtual, and Constructive Simulation Technologies.

Description: Commanders require homestation and deployable training systems providing targetry, tactical engagement simulation and training analysis and feedback capabilities similar to those provided at the Army's Combat Training Centers. These advanced systems must interoperate with CTC instrumentation systems, virtual and constructive simulation systems, and ABCS systems. Tactical engagement simulation and future CTC instrumentation systems must leverage current capabilities provided by MILES, SAWE-RF, and MILES II; and incorporate current and future systems that must be represented in the live simulation environment (i.e., ET systems, electronic warfare systems, future weapons system, and future munitions).

Reference: TRADOC Pam 525-5, pg. 4-2, paragraph 4-1b.

Previous OCR: TRD01.

AV 97-018. (Training): Synthetic Environment.

Description: Capability to develop, implement, and maintain tailorable synthetic environments. Training, at different levels(i.e. platoon through brigade),at different geographic locations, using different simulation systems, on an interactive basis, is recognized as beneficial. Future simulation systems, instrumentation systems, and ABCS platforms must be developed that operate (and interoperate) using common terrain, weather, and object databases, accurately represent atmospheric effects, and provide visual displays that are consistent with user requirements at all levels.

Reference: TRADOC Pam 525-5, pg. 4-2, paragraph 4-1b.

Previous OCR: TRD01.

4-4. Battle Command (Gordon).

BCG 97-001. Battlefield Information Passage.

Description: Capability for a seamless, secure, global information architecture that is dynamic, self-organizing, and self-healing. The information architecture must support integrated combat operations with a focus on the mobile warfighting commander. The information architecture must provide horizontal and vertical integration of secure and non-secure voice, data, graphics, imagery, and video information; provide spectral efficiency and an effective utilization and allocation of bandwidth including bandwidth on demand when appropriate; facilitate operations planning, information collection, and information dissemination; enhance the commander's ability to acquire information from sensor systems, battlefield functional area systems and from subordinate, adjacent, and higher organizations; support both analog and digital capabilities; integrate commercial and tactical communications networks; provide a capability to transfer information within the architecture without requiring specific knowledge of the mechanism or platform characteristics that make up the communications and automation hardware; enable the warfighter to use the same telephone and computer in garrison as tactically anywhere in the world; and be rapidly deployable. Implied are requirements for streamlined communications procedures and for global connectivity of extended-range communications assets, as well as integrated communications between the various interagency, joint, combined, and coalition forces including national command authority, operations (command and control), intelligence, logistics, administrative functions, and the numerous potential echelons of a Force Projection Task Force. Ideally, the adaptive nature of the information architecture and full use of the electromagnetic spectrum should reduce or eliminate degradation factors caused by weather, terrain, distances, obstacles, electromagnetic pulse, co-site RF interference, or jamming between sender and receiver or from supporting communications nodes.

Reference: None.

Previous OCR: BC02.

BCG 97-002. Data Network Interoperability.

Description: Capability for total, uninterrupted, interoperable data networking of secure and non-secure data between government and non-government agencies; tactical and strategic forces; and joint, combined, and coalition forces throughout the battlespace from the National Command Authority to operator level.

Reference: None.

Previous OCR: BC09.

BCG 97-003. Data Network Management and Services.

Description: Capability to maximize the availability of data communications networks. This capability must include network planning and engineering, battlefield spectrum management, communications security (COMSEC) management, wide area network (WAN) management, and signal command and control (SIG2).

Reference: None.

Previous OCR: None

BCG 97-004. Hands-Free Operation.

Description: Capability of commanders and their staffs to operate and control automation and communications equipment hands-free when either stationary or on-the-move in a tactical environment in joint and combined operations. This capability must exist in noisy, unstable, and stressful conditions. Enabling technologies include: voice, eye, and/or touch activation, heads-up displays, voice synthesis, automatic language translation, interactive natural language voice commands, and reduction or elimination of ambient noises. These capabilities are required to facilitate operations by minimizing computer operator interface requirements such as system setup (e.g., frequency settings on a radio), initialization, data manipulation functions, and transmission of messages while on the move.

Reference: None.

Previous OCR: BC11.

BCG 97-005. Electronic Tethering.

Description: Capability for commanders to have the freedom of moving around the battlefield to locations where they can best influence the battle at the critical time and place. While they cannot be tied physically to operations centers, they must be tethered electronically to access time-sensitive operational and intelligence information to allow them to continuously plan, communicate intent, issue orders, and monitor and coordinate operations. Command and control systems must be capable of linking all battlefield elements from the individual soldier through the national command authority. Systems must support battle command functions wherever the commander is located. Systems must be small and light weight, easily transportable, multimedia capable, and facilitate emplacement and rapid movement. C2 platforms must be mobile and transportable, yet ensure that designs and human engineering are adequate to house and support battle command personnel and systems for continuous operations. This includes, but is not limited to, adequate space, power, and internal communications

Reference: None.

Previous OCR: BC06.

BCG 97-006. Split-Based/Early Entry Connectivity.

Description: Capability to support future operations with selected elements that never deploy from homestation, or operate strictly out of rear, base, or sanctuary areas. Communications systems supporting split-based/early entry operations must be deployable, robust, assured, and provide a seamless state-of-the-art system of C4I across the operational continuum (including joint and combined forces) on a continuous basis. **Reference:** None. **Previous OCR:** BC08.

BCG 97-007. Commander to Battle Command Support Teams (BCST) Connectivity.

Description: Capability of commanders and staffs enroute to the theater or moving across fluid battlefields to continuously plan, communicate intent, issue orders, and monitor and coordinate operations. An adaptive warfighter information network with flexible ranges must provide the capability to interoperate with superior, adjacent, and subordinate commanders and their battlefield operating systems. BCSTs must have the capability to operate from mobile platforms. These platforms must be adequate to house and support battle command personnel and systems for continuous operations. They must be able to maintain the pace of the operational tempo, and withstand small arms and indirect fires and NBC attack.

Reference: None.

Previous OCR: BC13.

BCG 97-008. Information Protection.

Description: Capability for C4I systems to survive and operate under nearly all weather conditions, on dirty battlefields, and despite enemy jamming efforts. Systems should provide warning of unauthorized penetration and monitoring. Systems at all echelons must be protected against the NBC and electronic warfare (EW) threat. Systems should also provide redundant, automatic capability to acquire and process information even in the event of destruction of a primary processing facility, loss of an individual system, or in the event of isolated data loss at a particular node of a C2 system. Additionally, systems should have computer virus detection, protection, and source identification. Encryption capabilities should increase denial thresholds of current systems to the potential for enemy exploitation. Capabilities should facilitate automatic operations and minimize man-in-loop requirements. Capabilities should be embedded, but must be seamless when accessed in joint and combined operations. The ability to process all levels of security without the necessity of operating at the highest classification level on the same system is critical for rapid and efficient processing and communication of intelligence information. Signals should be made invisible with transmission masking and the origins of friendly signal sources hidden or disguised so that actual locations are not revealed to the enemy. Automatic controls should be embedded in C4I systems in order to disguise the signature produced and make it look as if there were not a C4I system operating. The controlling effect should be flexible enough to produce varying signatures in order to avoid pattern detection. Transmission of signals must be reduced to the least amount of time possible (e.g., improved data compression and the increased use of packet switching). Decoys should simulate the signatures (sight, sound, thermal image, and electronic for example) of a command post realistically enough to deceive enemy sensors. Systems should have the capability to penetrate enemy C4I operations, without alerting the operators that their computer and information systems have been compromised. Once inside the enemy's C4I structure, the capability must exist to present information to the enemy that

deceives them about the true objectives of the operation. Given imminent capture, a fail safe means must exist to destroy sensitive information residing on C4I systems locally or at remote locations.

Reference: None.

Previous OCR: None.

4-5. Battle Command (Leavenworth).

BCL 97-001. Shared Situation Map.

Description: Capability of providing a tailorable, scaleable, and common map. Will enable the commander to operate within the enemy's decision cycle by synchronizing forces and dictating the operational tempo. This common map must be comprised of timely, accurate, and friendly and enemy situational and status information (situational awareness) laid over a common, near-real time representation of the area of operation (including elevation, natural and man-made features, to include weather). C2 systems require worldwide and current maps that are interoperable horizontally and vertically, as well as joint. Mapping software that will accept multiple fused data sources, containing spectral libraries are required. Having real time situational awareness across the battlefield will enable the commander to intuitively picture the friendly and enemy situation and reduce battlefield uncertainty by display friendly and known enemy force location and status. Friendly force tracking must not be limited to line of sight communications. The common map must be scaleable to appropriate levels of command, tailorable by function, and based on variable user determined parameters. Enabling technologies allow weather and terrain products and situational updates in textual and graphic formats to be integrated.

Reference: TRADOC Pam 525-5.

Previous OCR: BC07.

BCL 97-002. Battlefield Information Passage.

Description: Capability for all commanders, their staffs, and all battlefield functional areas to seamlessly pass and share information, via integrated digital communications and computer networks, in both hierarchical networks (vertical and horizontally) and non-hierarchical networks, between battlefield functional areas and from the tactical level through the strategic. The seamless, secure, global information architecture must support integrated combat operations with a focus on the mobile warfighting commander. The information architecture must (a) provide horizontal and vertical integration of secure and non-secure voice, data, graphics, imagery, and video information; (b) facilitate operations planning, information collection, and information dissemination; (c) enhance the commander's

ability to acquire information from sensor systems, battlefield functional area systems and from subordinate, adjacent, and higher organizations; (d) support both analog and digital capabilities; (e) integrate commercial and tactical communications networks; (f) provide a capability to transfer information within the architecture without requiring specific knowledge of the mechanism or platform characteristics that make up the communications and automation hardware; and (g) be rapidly deployable. Implied are requirements for streamlined communications procedures and for global connectivity of extended-range communications assets, as well as integrated communications between the various interagency, joint, combined, and coalition forces including national command authority, operations (command and control), intelligence, logistics, administrative functions, and the numerous potential echelons of a Force Projection Task Force. Ideally, the adaptive nature of the information architecture and full use of the electromagnetic spectrum should reduce or eliminate degradation factors caused by weather, terrain, distances, obstacles, electromagnetic pulse, co-site RF interference, or jamming between sender and receiver or from supporting communications nodes.

Reference: TRADOC Pam 525-5.

Previous OCR: BC02.

BCL 97-003. Decision and Planning Support.

Description: Capability of assisting the commander and battle staff in mission planning, preparation, and execution. Decision making and operations planning requires knowledge based systems and decision aids, to improve quality and reduce decision making time. Decision making must take advantage of information available on seamless information networks to plan and rehearse operations. ET and simulation tools must be incorporated into decision support software for commander/staff training, mission rehearsal, and other tasks that are critical either because of the complexity of the task or the time sensitivity of the results. Decision aids are required to facilitate in-depth, timely analysis of information, and support "wargaming" potential scenarios. An example of decision aids requirements is an automated IPB process that integrates and depicts the affects of weather and terrain on operations, allows synchronization matrices and collection plans to be quickly updated, and provides realistic, interactive wargaming.

Reference: TRADOC Pam 525-5.

Previous OCR: BC03.

BCL 97-004. Smart Pull/Brilliant Push.

Description: Capability to pull down information as it is needed, and to automatically and responsively receive information that is critical to the situation, at the right time and right place. With greater amounts of data and information available on the battlefield and increased operational tempo, commanders and staffs will have reduced times to filter through information relevant to their situation. Information relevant to all commanders and staffs should be broadcast directly to them. Through the use of automated decision aids, intelligent agents, and programmable filters, commanders and staffs will be better able to identify and articulate their critical information requirements. This, in turn, will allow for critical information to be automatically displayed as it becomes available. In other situations, the system will facilitate the

commanders and staffs requests for more specific and detailed information that can be "pulled down" from any information source on the battlefield using system menus. Systems should have the capability of automatically notifying outside support organizations when a warfighter has exceeded programmed parameters (for example: consumed a significant portion of a critical commodity, such as fuel or ammunition, or exceeded a control measure).

Reference: TRADOC Pam 525-5.

Previous OCR: BC04.

BCL 97-005. Information Presentation.

Description: Capability to tailor information systems to the style of the user and to appropriately present information pertinent to the situation throughout the range of force projection operations. Information should be displayed in a manner that best supports the acquisition, exchange, and use of information. Data (i.e. terrain, weather, operational graphics, and status information) displays should support the intuitive commander and the decision making process by aggregating numerous pieces of information in standardized visual displays and locations using standardized symbology. Three dimensional representation of information (i.e., terrain, airspace management, or weapons engagement envelopes) should be realistically portrayed. Information displays must support on-the-move operations. Decision oriented graphics symbology should be displayed clearly. Operators must have the ability to change graphics interactively. The ability for the commander to either adapt quickly to a particular layout or to modify the layout should

not effect the underlying information sources. Operator training requirements must be minimized. Hardware and software for automation and communications systems must be user friendly in high physical and mental stress environments. The use of multiple-layer menus should be avoided. Automation tools should also minimize "man-in-the-loop" requirements and allow commanders to focus on critical warfighting tasks. Large screen devices and/or head mounted displays, should be suitable for operation in static and mobile CPs, and should accommodate the interaction of more than three personnel, keeping in mind the space limitations of some CPs.

Reference: TRADOC Pam 525-5.

Previous OCR: BC05.

BCL 97-006. Electronic Tethering.

Description: Capability for the commander to remain electronically connected to his information sources while he is enroute, moving, or stationary anywhere on the battlefield. Commanders must have the freedom to move around the battlefield to locations where they can best influence the battle at the critical time and place. While they cannot be tied physically to operations centers, they must be tethered electronically to access time sensitive information, to allow them to continuously plan, communicate intent, issue orders, and monitor and coordinate operations. Command and control systems must be capable of linking all battlefield elements from the individual soldier through the national command authority. Systems must support battle command functions wherever the commander is located. Systems must be small and light weight, easily transportable, and facilitate rapid movement and emplacement. C2 platforms must be mobile and transportable, yet ensure that designs and human engineering are adequate to house and support battle command personnel and systems for continuous operations. This includes, but is not limited to, adequate space, power, and internal communications.

Reference: TRADOC Pam 525-5.

Previous OCR: BC06.

BCL 97-007. System Interoperability.

Description: Capability for systems to be interoperable with other U.S. Army, sister service, government and non-government agencies, and allied systems. Forces require total, uninterrupted, interoperable hardware and software systems between government and non-government agencies, and joint and combined forces throughout the battlespace from the National Command Authority (NCA) to operator level.

Reference: TRADOC Pam 525-5.

Previous OCR: BC09.

BCL 97-008. Hands-Free Operation.

Description: Capability of hands free equipment operation while stationary or on-the-move. Commanders and their staffs must have the capability to operate and control automation and communications equipment hands free when either stationary or on-the-move in a tactical environment in joint and combined operations. This capability must exist in noisy, unstable, and stressful conditions. Enabling technologies include: voice, eye, mental, and/or touch activation; heads up displays; voice synthesis; and language translation. These capabilities are required to facilitate operations by minimizing computer operator interface requirements such as system setup (e.g., frequency settings on a radio), initialization, data manipulation functions, and transmission of messages while on the move.

Reference: TRADOC Pam 525-5.

Previous OCR: BC11.

BCL 97-009. Upgrade Exploitation.

Description: Capability for systems to be easily upgraded to fully exploit expanding technologies.

New technologies will be developed at rates even faster than today, however it is not economical

Reference: TRADOC Pam 525-5.

Previous OCR: BC12.

BCL 97-010. Staff Support.

Description: Capability of Battle Command Support Teams (BCST) to support the commander in controlling current operations and adjusting plans for future operations. The staff must be an extension of the commander, see things as he does, and share his responsibility for the mission so he can reach the critical decisions with the best possible information and lead from where he can best affect the action. Skilled staffs work within the commander's intent to direct and control units and allocate the means to support that intent. They assist the commander in anticipating the outcome of the current operation and developing the concept for the follow-on mission. They understand, and can apply, a common doctrine. The battle staff must also understand what information the commander deems important for making decisions and provide it in an accurate and timely manner. It is the product of staff work that serves the needs of the commander. Battle staffs must be organized to ensure the command process is sustained, especially when the commander must rest or in the event he becomes a battle casualty. Underlying this capability is the requirement to recruit, develop, and retain quality people. Recruiting programs must be developed and employed to determine early the capabilities and potential of commanders and staffs. Training programs must be developed and harness new technologies to improve the comprehension and retention of key leadership and staff skills. Smaller BCSTs are desirable to reduce strategic lift requirements, present smaller targets, enhance mobility and reduce sustainment requirements. In order that BCSTs be reduced in size, but still perform the same functions, technologies must be applied that will reduce the workload on soldiers. Enabling technologies include decision support software and planning aids, user friendly systems that optimize work performance, systems that automate staff functions, allow workload sharing, and predict high workload periods and miniaturized hardware. Deployed BCSTs may also be made smaller through the use of virtual staffs. Using advanced command, control, and communications systems, small BCSTs could be linked to larger staffs in the rear, in a sanctuary, or even CONUS. Utilizing a shared, relevant common picture, rearward staffs could provide timely and accurate planning, operational and administrative support to the forward located BCST. Other actions required to make BCSTs smaller are more efficient and effective man-machine information interface, reorganization of staff structure around information flows that reduce fragments, stovepipes, and hand-offs. Staffs should be internettted and at least partially nonhierarchial to conduct cross-BOS processes.

Reference: TRADOC Pam 525-5.

Previous OCRs: BC14, BC17.

BCL 97-011. Team Building.

Description: Capability to tailor BCSTs to the mission and commander's requirements. Modular, functionally-based force designs that can better support the current force and are aligned with Force XXI development initiatives are required to support continuous operations, task organization, and incremental force deployments. Concepts must focus on development of organizations that provide for increased flexibility and mobility, while eliminating redundant "cold war" headquarters, and streamline other force XXI structures and organizations. The goal is to field an "adaptable" force with improved force tailoring, adaptive packaging and deployability. The network systems must have the capability for smart networking and instant communications. It should grow stronger as units are added rather than weaker.

Reference: TRADOC Pam 525-5.

Previous OCR: BC15.

BCL 97-012. Information Attack.

Description: Capability to disrupt an adversary's ability to exercise authority and direction over his forces. Sensors are required to detect, identify, accurately locate, and schematically map an adversary's C2 nodes in order to maximize counter C2 operations that exploit, deceive, damage, or destroy the adversary's C2 system. Such systems must be able to identify threat forces that do not exhibit traditional electromagnetic signatures. Future counter-C2 development must consider multi-function, modular systems to defeat night vision devices and adversary optics and electro-optics; indirect fire electronic weapons to defeat deep adversary electronics; improving the survivability of jammers and increasing their frequency coverage and range; developing a military capability to attack an adversary's information systems internally (computer attacks); improving the capability to perform electronic deception; and developing smart weapons that seek out and destroy high payoff information systems that are engaged in either the collection, processing, dissemination, or display of information.

Reference: TRADOC Pam 525-5.

Previous OCR: BC19.

BCL 97-013. Information Protection.

Description: Capability to protect information systems. C4I systems must survive to operate under nearly all weather conditions, on dirty battlefields, and despite enemy jamming efforts. Systems should provide warning of unauthorized penetration and monitoring. Systems at all echelons must be protected against the NBC and EW threat. Systems should also provide redundant, automatic capability to acquire and process information even in the event of destruction of a primary processing facility, loss of an individual system, or in the event of isolated data loss at a particular node of a C2 system. Additionally, systems should have computer virus detection, protection, and source identification. Encryption capabilities should increase denial thresholds of current systems to the potential for enemy exploitation. Capabilities should facilitate automatic operations and minimize man-in-loop requirements. Capabilities should be embedded, but must be seamless when accessed in joint and combined operations. The ability to process all levels of security without the necessity of operating at the highest classification level on the same system is critical for rapid and efficient processing and communication of intelligence information. Signals should be made invisible with transmission masking and the origins of friendly signal sources, hidden or disguised so that actual locations are not revealed to the enemy. Automatic controls should be embedded in C4I systems in order to disguise the signature produced and make it look as if there were not a C4I system operating. The controlling effect should be flexible enough to produce varying signatures in order to avoid pattern detection. Transmission of signals must be reduced to the least amount of time possible (e.g., improved data compression and the increased use of packet switching). Decoys should simulate the signatures (sight, sound, thermal image, and electronic for example) of a command post realistically enough to deceive enemy sensors. Systems should have the capability to penetrate enemy C4I operations, without alerting the operators that their computer and information systems have been compromised. Once inside the enemy's C4I structure, the capability must exist to present information to the enemy that deceives them about the true objectives of the operation. Given imminent capture, a fail safe means must exist to destroy sensitive information residing on C4I systems locally or at remote locations.

Reference: TRADOC Pam 525-5.

Previous OCR: BC20.

BCL 97-014. Information Exploitation.

Description: Capability to exploit an adversary's information system. To facilitate the exploitation of an adversary's C2 system, the friendly C4I system must consist of integrated ground, airborne, and space-based multi-discipline sensor/collection systems that support situation development. Fusion of sensor data at the sensor platform will minimize requirements for communication bandwidth and allow for integration of multi-spectral information. It will be necessary to collect information from an adversary's information age systems such as digital and LPI communications. The C4I system must allow for detection and location of an adversary's intelligence collection and sensor and electronic attack systems. These systems must be easily reprogrammable for countering diverse threat weapon systems. Tools need to be developed to allow for analysis of an adversary's C2 system. Distributed all source analysis (ASAS) and dissemination systems will be required to facilitate seamless access to intelligence information at all echelons. The ability to pull intelligence from higher echelons as desired/required, as well as to disseminate tailored intelligence products, both horizontally and vertically, to multiple users is required.

Reference: TRADOC Pam 525-5.

Previous OCR: BC21.

BCL 97-015. Information Enable.

Description: Capability to enable or facilitate friendly information exchange. Friendly C4I systems must facilitate seamless, real time information exchange that provides warfighters with the information they require regardless of echelon, physical location, or security level. Digitization of the battlefield, which consists of processors and digital communications all using common formats, will permit a common view of the battlefield which allows for situational awareness, synchronization of battlefield activities, and command and control on the move. C4I systems must provide for information exchange at the rates required to facilitate up to date situational awareness at all necessary locations. Automated multilevel security processing within C4I systems must be provided. C4I architectures must allow for information exchange among a force's homestation, the logistics agencies, and intelligence agencies. Deploying forces need information while enroute and in-theater. These communications must be reliable and flexible. Some types of intelligence collection will require special forms of communication to facilitate efficient and secure information exchange. Standardized graphics are required that can be shared with joint, coalition and multi-national forces.

Reference: TRADOC Pam 525-5.

Previous OCR: BC22.

BCL 97-016. Commander and Battle Staff Training.

Description: Capability must be available to train commanders and battle staffs using integrated battle command systems and live, virtual, and constructive simulations. Training for commanders and battle staffs must integrate live, virtual, and constructive simulations across the total force. Training capabilities must be designed into all systems and these capabilities should replicate combat conditions. Training systems will be linked together seamlessly. Training should also allow for extensive combat support and combat service support participation to include non-traditional players such as medical and JAG. Training must include all tactical communication systems. Subordinate units participating must have the capability to do so from many different and diverse locations including across the continent and globe. Remote learning capabilities must be exploited. The training system must be weather and terrain independent and be user friendly. Such a system must allow for the capture, storage, and processing of historical data for later analysis and use in the after action review process. The training system will also provide for a video feed for an after action review between the players.

Reference: TRADOC Pam 525-5.

Previous OCR: BC23.

BCL 97-017. Force XXI Training.

Description: Capability for the commander and his critical staff to comprehend the organization, structure, capabilities, and limitations of Force XXI C4I architectures (organic and split-based). There is a requirement to instruct future commanders in the organization, structure, and capabilities of the Force XXI C4I architectures. This requirement must be met before the commander arrives to take command of his unit. This training may take place through a variety of hands-on simulations and exercises that teach and test the commander's understanding of the C4I architecture. There is also a requirement for critical staff officers, such as the G-3, to have a full understanding of the C4I architecture as well.

Reference: TRADOC Pam 525-5.

Previous OCR: BC24.

BCL 97-018. Joint/Coalition Doctrine.

Description: Capability for the commander to rapidly integrate his forces into a joint/coalition force projection environment which spans the continuum of military operations. The Force XXI commander and staff will require an extensive knowledge of joint and coalition doctrine. They must have a clear understanding of how future joint/coalition partners intend to operate in war and OOTW, and of their strengths and weaknesses. Liaison officers must understand the joint/coalition partner's organization, doctrine, capabilities, equipment, civil agency procedures, intent, and in certain cases languages.

Reference: TRADOC Pam 525-5.

Previous OCR: BC25.

BCL 97-019. Commanding Modular Organizations.

Description: Capability to maximize the benefits of modular structured organizations (tactical, operational, and strategic). Commanders must be schooled in the task organization and employment of modular organizations. While the modular concept will actually allow a better mix and size of forces available to the commander, it will also provide him additional challenges of units that may not have trained, exercised, or been employed together previously. C4I systems must link all organizations and training in common doctrine and tactics, techniques, and procedures. Commanders must receive training/experience in the human dimensions of fighting teams organized from modular units. This will include the training and simulation systems addressed in OCR BC22.

Reference: TRADOC Pam 525-5.

Previous OCR: BC26.

BCL 97-020. Media Impact.

Description: Capability to either exploit or react to the influence of the media on operations. Commanders need to be schooled on the capabilities of the media in all its forms: electronic, written, and audio. Commanders must be constantly aware of the changing Global Information Environment, its effect on the opinions, attitudes, and beliefs held by the American public, political leaders, soldiers and their families, allies, adversaries, and other important audiences, and the impact of these opinions, attitudes, and beliefs on the Army and its operations. Commercial satellite technology has the ability to provide detailed, graphic, and live coverage of and information about events from anywhere in the world to everywhere in the world. This ability will continue to influence our operations. At all levels, battle commanders must be taught how to enable, enhance, and protect the use of information in the friendly decision and execution process while influencing (degrading and controlling) an adversary's decisions and actions through the manipulation of the Global Information Environment. Battle commanders need to understand the immediacy of the impact of media coverage so they can anticipate adjustments to their plans and operations. Also their plans and operations will form world opinion and affect strategic decisions in a more profound and immediate way than in the past.

Reference: TRADOC Pam 525-5.

Previous OCR: BC27.

4-6. Chaplain.

CH 97-001. Unit Ministry Team Intra-Communication.

Description: Capability to provide lightweight, portable, "hands-free" communications link between Unit Ministry Team (UMT) members performing split operations on the battlefield. Must have auxiliary receptacle for use by a third party. Capability will maximize UMT soldier sustainment in combat during split operations, multiple aid stations, and mass casualty situations.

Reference: TRADOC Pam 525-78, paragraph 3-3d.

Previous OCRs: BC11, EEL23.

CH 97-002. Battlefield Electronic Ministrations Tracking.

Description: Capability to electronically track and transmit casualty emergency ministrations and pastoral care information via satellite to a data collection point for use by casualty assistance offices and notification of next-of-kin. Capability would provide notification officers and accompanying chaplains with vital information like last rites, battlefield pastoral care, and pertinent free-text messages.

Reference: TRADOC Pam 525-78, paragraph 3-3c.

Previous OCR: BC02.

CH 97-003. Ministry Projection.

Description: Capability to provide ministry teams necessary real time and preprogrammed religious support to the 21st Century Land Warrior. This capability is critical for religious support and soldier sustainment to soldiers positioned outside physical contact with religious support elements on a dispersed battlefield. Capability will utilize advanced technology.

Reference: TRADOC Pam 525-78 paragraph 3-3c.

Previous OCR: TRD01.

CH 97-004. Audio Translator.

Description: Capability to communicate with indigenous religious leaders and populace during stability and support operations (SASO). Capability to review digitized text before rendering audio translation. Translate both audio and manual input to/from selected host language.

Reference: TRADOC Pam 525-78 paragraphs

3-1a(2)(a-b) and 3-3b(3).

Previous OCR: EEL19.

CH 97-005. Battlefield Information Passage.

Description: Capability to perform tele-mentoring, tele-counseling, tele-training, and teleconferencing in a joint environment through worldwide integrated network including satellite, digital radio, and cable. Must be compatible with Army and DOD technical architecture and survivable in all climates.

Reference: TRADOC Pam 525-78 paragraphs 3-2c(3), 3-3c.

Previous OCR: BC02.

CH 97-006. Power Generation.

Description: Capability to provide alternating current (A/C power) from vehicle direct current (D/C Power). Capability will serve as power source and recharging unit for UMT electronics.

Reference: TRADOC Pam 525-78 paragraph 3-3c.

Previous OCR: MTD006.

CH 97-007. Non-primary Power Sources.

Description: Capability to provide a rechargeable power source for the UMT. Capability must augment vehicular power to prevent depletion of vehicular direct current.

Reference: TRADOC Pam 525-78, paragraph. 3-3c.

Previous OCR: MTD006.

CH 97-008. Simultaneous Secure Voice and Digital Communications.

Description: Capability for secure voice/digital communications. Capability must be compatible with developing digital technologies related to the tactical internet, and include capability for global positioning, operational overlays and digital messaging. Capability will permit UMT situational awareness and improve responsiveness during operations.

Reference: TRADOC Pam 525-78 paragraph. 3-3d.

Previous OCR: BC02.

CH 97-009. Mobility.

Description: Capability for UMT to rapidly deploy, employ, and redeploy during all types of operations while visiting units. Capability will give UMTs greater flexibility, timeliness, and safety in performing ministry.

Reference: TRADOC Pam 525-200-6, paragraph 4-6a.

Previous OCR: CSS20.

CH 97-010. Simulations.

Description: Capability for interactive simulation and live modes to enhance MT provision of religious support on the battlefield through rehearsal with other BOS. The combination of virtual, constructive, and live simulations must be utilized in institutional training for a realistic preview of varied operational environments. Likewise, integration into the army simulation systems will enhance soldier training with religious support on the simulated battlefield.

Reference: TRADOC Pam 525-200-2, TRADOC PAM 525-78, paragraph 3-3f.

Previous OCR: EEL21.

CH 97-011. Religious Support Projection.

Description: Capability to project religious support (e.g. rites, sacraments, emergency ministrations, worship, counseling, education, etc.) to soldiers positioned outside physical contact with religious support elements on a dispersed battlefield. This capability is critical to religious support for independent company-size (or smaller) units conducting split-based operations, or attached to multinational forces devoid of religious support.

Reference: TRADOC Pam 525-78, paragraph. 3-3a (c).

Previous OCR: None.

4-7. Chemical.

CM 97-001. NBC Battle Command System.

Description: Capability to assimilate NBC information received from battlespace visualization systems, evaluate the data with respect to current and future METT-T and then provide leaders/staffs with predicted and actual behavior of NBC within their multidimensional battlespace as a basis for planning and/or modifying NBC operations. Must provide the capability for both training and combat mission planning and analysis. Must interface with joint NBC warning and reporting, local weather, intelligence, medical, and civil systems to track and maintain NBC situational awareness. Must identify and assess the threat's weapon systems/capability. Must predict and track NBC munitions release/ impact point(s) and expected/confirmed contamination at the macro (terrain/facilities) and micro (personnel /equipment) levels. Must automatically predict, track, and provide assessment /management tools for the following with respect to concurrent and future METT-T:

- a. Detected and suspected NBC hazards.
- b. Impact of predicted/actual NBC hazard effects.
- c. Value/impact of NBC defense measures in both threat and friendly operations (RISTA).

Must conduct parametric analysis of all predicted/actual data and recommended/ provide:

- a. Positioning of available NBC detection/ monitoring, recon, and decon assets.
- b. Appropriate NBC countermeasures.
- c. Assessment and decision making information and tools.

Must quantify the risk associated with various courses of action and provide real time display with local three dimensional digital terrain graphics to portray the current status of the battlespace with recommendations and predictions.

References: TRADOC Pam 525-5, p. 3-3, paragraph 3-2a; p. 3-9, paragraph 3-2b; p. 3-18, paragraph 3-3b(1)(a); p. 3-20, paragraph 3-3c(4); p. 4-8, 4-1e(2)(f)1; TRADOC Pam 25-63, pg. 5, paragraph 3-2b.

Previous OCR: None.

CM 97-002. NBC Visualization.

Description: An enhanced capability to detect, locate, identify, and confirm the presence or absence of any standard or nonstandard NBC hazard. Must provide immediate horizontal and vertical notification of hazard existence and location (GPS linkage). Must provide automated contamination identification for known and unknown, standard and nonstandard NBC hazards, and toxic industrial chemicals. Must identify and characterize the physical state of the hazard (solid/liquid/vapor/aerosol). Must provide hazard density data over time and obtain and preserve environmental and NBC related samples. Must provide water test capability to verify potability for human consumption. Must provide soldier, point, fixed site, aerial, and large area (critical node and theater) coverage. Must integrate, point detection and large areas standoff detection, and must be accurately deployable in a soldier carried, mounted, dismounted, projectable and/or space-based configuration.

References: TRADOC Pam 525-5, p. 3-9, paragraph 3-2b; p. 4-8, paragraph 4-1e(2)(e); 4-8, paragraph 4-1e(2)(c)5; TRADOC Pam 6-63, pg. 5, paragraph 3-2b; p. 24, paragraph E-1.

Previous OCR: EEL07.

CM 97-003. NBC Individual Protection.

Description: Capability to protect individuals from all NBC, flame/thermal, ballistic, and environmental hazards. Must provide ultra lightweight protection that is compatible with all combat environments, equipment, communication, and camouflage. Must provide flexible, METT-T tailorable, and reusable protection. Must minimize fratricide and the need for dedicated/specialized logistics, personnel, or training and must maximize protective and storage life.

References: TRADOC Pam 525-5, p. 3-14, paragraph 3-2e; p. 3-18, paragraph 3-3b(1)(d); p. 4-8, paragraph 4-1e(2)(c)6; p. 4-8, paragraph 4-1e(2)(d); TRADOC Pam 525-20; TRADOC Pam 525-63, p. 7, paragraph 3-2c(1)(a); p. 24, paragraph E-2.

Previous OCR: EEL08.

CM 97-004. NBC Collective Protection.

Description: Capability to provide safe and effective collective protection for personnel and equipment from all standard and nonstandard NBC hazards. Must provide mobile, fixed site, and vehicle crew protection; must be readily decontaminated/ self decontaminating; have integrated and regenerative power supply and air handling capability; and has internal environmental control (heating, cooling, humidity). Must provide flexible, METT-T tailorable protection. Must maximize protective and storage life and minimize dedicated /specialized logistics, personnel, or training. Must be compatible with all combat environments, equipment, communications, and camouflage.

References: TRADOC Pam 525-5, p. 3-18, paragraph 3-3b(1)(d); p. 4-8, paragraph 4e(2)(c)7; TRADOC Pam 525-20; TRADOC Pam 525-63, p.7, paragraph 3-2c(2).

Previous OCR: EEL08.

CM 97-005. NBC Restoration Capabilities.

Description: Enhanced capability to provide rapid, effective, and safe NBC decontamination to enable restoration of unit operational capabilities. Must provide decontamination for personnel, equipment, sensitive item/air craft and terrain/ fixed sites. Must be environmentally safe, nondestructive, and minimizes collateral medical attention. Must minimize use of resources.

References: TRADOC Pam 525-5, p. 3-14, paragraph 3-2e; p. 3-18, paragraph 3-3b(1)(d) TRADOC Pam 525-20; TRADOC Pam 525-63, p.8, paragraph 3-2d.

Previous OCR: None.

CM 97- 006. NBC Medical Defense.

Description: Capability to effectively treat and pretreat soldiers to minimize chemical/ biological (CB) and residual radiological effects on soldiers. Must provide a single multivalent pretreatment and treatment for all CB agents and residual radiological effects. Must reduce/eliminate significant adverse collateral medical attention or operationally degrading effects.

References: TRADOC 525-63, p. 7, paragraph. 3 -2c(1)(b),(c); p. 8, paragraph 3-2e(1); paragraph A 9b.

Previous OCR: None.

CM 97-007. Smoke and Obscurant Capabilities.

Description: Capability to selectively deny enemy observation, target acquisition, sensing, signaling, and shooting local or large area obscuration. Must provide alternative occupational and environmentally safe smoke/fuel.

References: TRADOC Pam 525-3, p. 4, paragraph 4a(1)-(7); p. 8, paragraph 4f-g; p. D5, paragraph D6; p.D7, paragraph D7; TRADOC Pam 525-5, p. 3-6, paragraph 3-2a (9), p. 3-18, paragraph 3-3b(1)(c).

Previous OCR: None.

CM 97-008. Automated Smoke and Obscurant Management.

Description: An automated capability to detect, locate, identify, and confirm the presence or absence of any natural, by-product, or artificial smoke and obscurants (S/O). Must provide horizontal and vertical notification of obscurant existence and location. Must provide wavelength identification and density data. Must integrate, point detection and large area standoff detection and must be accurately and reliably deployable in a soldier carried, mounted, dismounted, projectable and/or space-based configuration.

- a. Optimal positioning and use of available S/O generating and recon assets recommended S/O countermeasures.
- b. Assessment and decision making formation and tools. Must quantify the risk associated with various courses of action. Must provide real time display with local three dimensional digital terrain graphics to portray the current status of the battlespace with predictions and recommendations.

References: TRADOC Pam 525-5, p. 3-6, paragraph 3-2a; p. 3-18, paragraph 3-3b(1)(a); TRADOC Pam 525-3, p. 7, paragraph 4c-e.

Previous OCR: None.

CM 97-009. Smoke and Obscurants Visualization.

Description: A tactically integrated capability

to plan, wargame (model/simulate), rehearse, monitor, and control the execution of tactical smoke and obscurant (S/O) missions. Must provide the capability for training and combat mission planning and analysis. Must provide location and system status link with smoke generating and recon assets. Must provide the capability to automatically predict, track, and provide assessment/management tools for the following with respect to current and future METT-T.

- a. Available threat electro-optical (EO) capabilities.
- b. Detected and suspected S/O cloud and cloud effects.
- c. Value/impact of available S/O capabilities and S/O countermeasures on both threat and friendly operations.

Must provide the capability to conduct parametric analysis of all predicted/actual data.

References: TRADOC Pam 525-3, p. 20, paragraph 4h-j; TRADOC Pam 525-5, p. 3-8, paragraph 3-2b; p. 3-18, paragraph 3-3b(1)(b); p 4-8, paragraph. 4-1e(2)(f)1.

Previous OCR: None.

CM 97-010. Advanced Flame and Incendiaries.

Description: The capability to employ target degrading, obscuring, and defeating advanced incendiary materials/effects throughout the battlefield. Must provide electro-optical (multi-spectral) obscuration and cause dissipation or attenuate other battlefield obscurants. Must be accurately deployable in a soldier carried, mounted, dismounted, projectable and/or space-based configuration. Must be safely transportable and employable by a minimum of non-specialized soldiers. Must provide training munitions or simulations techniques.

References: TRADOC Pam 525-3, p. 16, paragraph 4g(4); p. 20, paragraph 4h(2)(h)(4).TRADOC Pam 525-5, p. 3-12, paragraph 3-2d; p. 3-18, paragraph 3-3b(1)(a)(c).

Previous OCR: None.

CM 97-011. Nonlethal Materials and Effects.

Description: The capability to safely employ tailorable/predictable nonlethal materials effects to degrade enemy personnel, material, and equipment throughout the battlefield. Must be environmentally and occupational safe.

Reference: TRADOC Pam 525-73.

Previous OCR: None.

CM 97-012. Chemical Asset Deployability.

Description: Capability to rapidly deploy and employ NBC decontamination, NBC reconnaissance, and smoke units. Capability to deploy with minimal preparation, into an immature theater, become quickly operational with minimal support, operate in and from austere areas, and conduct enroute operations.

Reference: None.

Previous OCR: None.

CM 97-013. Chemical Asset Sustainment.

Description: Capability to maintain readiness for uninterrupted operations in an NBC environment. Must provide the capability to automatically track the serviceability and status of all NBC protective equipment on the battlefield, in transit, and in storage. Provides automated notification of status. Provides the capability to sustain high NBC decontamination, NBC reconnaissance, and smoke operational readiness/operations tempo by maximizing available maintenance and supply resources.

Reference: None.

Previous OCR: None.

CM 97-014. Navigation.

Description: Chemical units require navigational capabilities that produce automated and on demand, real time, on-board, all weather position location that locates terrain features and elements of friendly units, while they are stationary or on the move. Must provide an auto-navigation feature linked to terrain products and operational plans.

Reference: None.

Previous OCR: None.

CM 97-015. Environmental Stewardship.

Description: Capability to rapidly detect, assess, and initiate emergency response measures/clean-up actions to an industrial hazardous materials/waste release during stability and support operations or peace time. Must complement other military and/or commercial response/clean-up capability.

Reference: None.

Previous OCR: None.

CM 97-016. Chemical Asset Mobility.

Description: Capability to effectively and efficiently move resources in a timely manner to keep pace with the supported force. Must provide maneuverability and agility, survivability, timeliness, and safety in daylight, darkness, collision avoidance, and obscured vision conditions during all phases of movement.

Reference: None.

Previous OCR: None.

4-8. Combat Service Support Battle Lab.

CS 97-001. Power Sources and Accessories.

Description: Capability to provide smaller, lighter, longer lasting, higher energy, maintenance free power sources for communications/ electronics systems, all vehicles, air and water craft, individual soldier systems and medical equipment which will operate in any environment. Will provide batteries (primary, rechargeable, reserve, thermal, solar or any new concepts), capacitors, fly wheels, or similar technologies and stand alone power sources such as fuel cells,

generators, or photovoltaics; easy to use tools and test equipment to include, but not limited to, a universal all chemistry, smart/ interactive, small light-weight, portable battery charger, state of charge indicators (internal or external to the battery or system), and load/no load testers; require power reduction circuitry and power management techniques and practices allowing longer intervals between power source replacement. For the individual soldier the objective capability will be universal power source that provides simultaneous power to any/all soldier carried systems/subsystems without degradation.

Reference: Battery Modernization Strategy.

Previous OCR: CSS 18.

CS 97-002. Containerization and Packaging.

Description: Capability to optimize package and container load configurations to cover the spectrum of distribution platforms in CONUS and in theater. Will provide cargo adaptable packaging that is recoverable, recyclable, light weight, needing little or no dunnage, and capable of being decontaminated, electronically tracked during employment and monitored for integrity and effects of adverse environmental conditions (e.g., temperature, moisture, shock, etc.).

Reference: TRADOC Pam 525-100-1, p. 11, paragraph XX.

Previous OCR: CSS02.

CS 97-003. Peace Operations Sustainment.

Description: Capability to seamlessly transition from peace operations sustainment to wartime sustainment mode employing developed CSS systems and processes. Will employ existing and evolving sustainment equipment.

Reference: Army Strategic Logistic Plan (ASLP).

Previous OCR: CSS05.

CS 97-004. In-Transit Visibility/Total Asset Visibility /Battlefield Distribution.

Description: Capability to integrate tracking, materiel/carrier content status indication, and extended communications capabilities associated with all classes of supply, unit equipment, units, and required movement platforms. Will provide access to evolving technology improvements in the ability to effectively track and control of supply/ distribution operations covering all levels of suppliers, customers/materiel users, supply locations, and delivery points; provide near real time or real time access to an established distribution system data base and control capabilities.

References: TRADOC Pam 525-200-6; Combat Service Support CASCOP Pub, Vision of Combined Arms Support.

Previous OCR: CSS02.

CS 97-005. Personnel Service Support (PSS).

Description: Capability to perform complete range of PSS functions associated with Personnel, Finance, Chaplain, JAG, and Public Affairs in conjunction with existing and evolving operational capabilities/processes while minimizing the footprint of related and interfacing command and communications systems. Will provide at the highest level possible near real time/real time personnel tracking, casualty tracking, mail tracking/ delivery, full-up communications capabilities to include FAX, VTC, satellite link, e-mail, and desktop computer applications, access to the full-range of functional finance and accounting systems, and seamlessly interface with current and developing systems.

Reference: TRADOC Pam 525-200-6.

Previous OCR: CSS22.

4-9. Dismounted Battlespace Battle Lab.

DBS 97-010. Lethality.

Description: Dismounted forces and individual dismounted soldiers will have overmatching lethality throughout dismounted battlespace, in all political and physical environments. This lethality will be achieved through the

integration of overmatching survivability, situational awareness, state of the art sensors and countermeasures, and a full complement of manpackable direct and indirect fire weapon systems fused with precision fire control, linked to organic and non-organic target acquisition sensors and platforms. The dismounted force will derive its lethality from the amalgamation of the individual soldier lethality's, its support force structure, and the density and distribution of its combat power within the battlespace. The dismounted force maneuver battalion and its organic elements, will be robust organizations.

Reference: TRADOC Pam 525-200-3.

Previous OCR: DBS02A.

DBS 97-011. Lethality - Dismounted Direct Fires.

Description: Dismounted forces and dismounted soldiers will be equipped with direct fire weapons systems that provide overmatching battlefield lethality. These weapons will provide the capability to defeat adversaries beyond the effective range of the adversaries' weapons. Soldier lethality will be optimized for night fighting and engagements in close and restrictive terrain. Manpackable individual and crew served weapons will be capable of defeating targets ranging from enemy soldiers to armor and aircraft. All manpackable organic direct fire weapons will be parachutist deliverable and have a minimum three day basic load of ammunition and power (when applicable).

Reference: TRADOC Pam 525-200-3.

Previous OCR: DBS02A.

DBS 97-012. Lethality - Dismounted

Indirect Fires.

Description: Dismounted forces will be

equipped with manpackable, parachutist deliverable, indirect fires capable of providing

the task force commander with organic lethal, precision when necessary, indirect fire support.

Reference: TRADOC Pam 525-200-3.

Previous OCR: DBS05A.

DBS 97-013. Lethality - Engage and Defeat Moving and Stationary Targets.

Description: Dismounted soldiers will engage and defeat stationary and moving dismounted adversaries, light skinned vehicles, surface watercraft, and aircraft with direct and indirect

fire. Bunkers and armor will be defeated with direct and indirect fire.

Reference: TRADOC Pam 525-200-3.

Previous OCR: DBS01.

DBS 97-014. Lethality - Dismounted Soldier Target Acquisition Capabilities.

Description: An integral part of soldier lethality will be the capability to acquire targets beyond the effect range of the enemy target acquisition systems through soldier system sensors and through linkage to force level sensor arrays and intelligence. Target acquisition will include day/night, all weather target location, tracking (including auto tracking), and combat identification.

Reference: TRADOC Pam 525-200-3.

Previous OCR: DBS03.

DBS 97-015. Lethality - Weapons Pointing and Control.

Description: Integrated soldier systems will provide weapons pointing and full solution fire control providing

maximum probability of hit/destruction.

Reference: TRADOC Pam 525-200-3.

Previous OCR: DBS16.

DBS 97-016. Lethality - Sensor to Shooter Linkages.

Description: The battlefield sensor arrays will be capable of providing targeting data directly to the soldier systems, and the sensor output data distribution will be configurable by the task force commander who will plan and control the sensor to shooter linkages.

Reference: TRADOC Pam 525-200-3.

Previous OCR: DBS15.

DBS 97-017. Lethality - Night and Obscured Engagement.

Description: Dismounted forces will engage the enemy and other targets at night and on obscured battlefields at ranges greater than the range at which enemy forces can detect and/or engage dismounted forces.

Reference: TRADOC Pam 525-200-3.

Previous OCR: None.

DBS 97-018. Lethality - Smart and Intelligent Mines.

Description: Dismounted soldiers will employ manpackable smart and intelligent mines that will be employed singly or in an integrated barrier array as a mine field. Mines will serve as a pursuit deterrent, an automatic ambush, a perimeter security, or an area denial capability, as required.

Reference: TRADOC Pam 525-200-3.

Previous OCR: DBS04.

DBS 97-020. Survivability.

Description: Forces operating in dismounted battlespace will be highly survivable. This survivability will be achieved through the integration of overmatching lethality, situational awareness, state of the art sensors and countermeasures, and a full complement of directed energy, ballistic, chemical and biological, and environmental protections. The dismounted force will derive its survivability from the amalgamation of the individual soldier survivability's, its redundant force structure and the density and battlefield distribution of its combat power within the battlespace.

Reference: TRADOC Pam 525-200-3.

Previous OCR: None.

DBS 97-021. Survivability - Active Capabilities.

Description: Dismounted soldiers require active capabilities to ensure overmatching survivability including combat identification, combat life saving, battle injury treatment and prevention, non-battle casualty prevention and treatment, physiological monitoring including battle stress and selected non-battle injuries and illness prediction. When a dismounted force is operating independently, in war or operations other than war it will be augmented with veterinary preventive medicine services.

Reference: TRADOC Pam 525-200-3.

Previous OCR: DBS07.

DBS 97-022. Survivability - Passive Capabilities.

Description: Dismounted forces require passive capabilities to ensure overmatching survivability including timely intelligence, and low observability, light weight protection from ballistic, directed energy, tactical and industrial

chemicals, and environmental stresses.

Reference: TRADOC Pam 525-200-3.

Previous OCR: DBS06.

DBS 97-023. Survivability - Dismounted Forces Acquisition Countermeasures.

Description: Dismounted forces will have capabilities which reduce or eliminate a hostile force's capability to detect, locate, range, and engage friendly dismounted forces and their individual dismounted soldiers.

Reference: TRADOC Pam 525-200-3.

Previous OCR: DBS08.

DBS 97-024. Survivability - Signature Reduction.

Description: Dismounted forces will have an array of signature reduction/elimination technologies in the visual, thermal, acoustic, and radar bandwidths. Low observable technologies, advanced conventional and multi-spectral concealment capabilities through camouflage are required to counter enemy acquisition capabilities.

Reference: TRADOC Pam 525-200-3.

Previous OCR: DBS09.

DBS 97-030. Mobility - Tactical Dismounted Mobility.

Description: Forces operating in dismounted battlespace require the capability for rapid, agile maneuver in close terrain, vehicle restrictive terrain, and during airborne, air assault, and waterborne operations.

Reference: TRADOC Pam 525-200-3.

Previous OCR: DBS23.

DBS 97-031. Mobility - Individual Mobility Enhancements.

Description: Dismounted soldiers operating in the dismounted battlespace will have almost unrestricted mobility in close terrain and will readily negotiate mobility restrictive terrain. Human capability enhancements of load bearing, and nutritional/medical enhancements of human performance will make dismounted soldiers capable of extended activity in all physical environments and climates, to include night and obscured environments.

Reference: TRADOC Pam 525-200-3.

Previous OCR: DBS24.

DBS 97-033. Mobility - Obstacle Breaching.

Description: Dismounted forces will have capabilities to detect, identify, and breach or bypass natural or manmade obstacles to maintain dismounted forces mobility.

Reference: TRADOC Pam 525-200-3.

Previous OCR: DBS22.

DBS 97-032. Mobility - Dismounted Navigation.

Description: Forces navigating in dismounted battlespace on restrictive terrain will know each individuals geo-location, continuously. Each soldier will be capable of auto navigation to include under jungle canopy, within structures in urban terrain, and during airborne, air assault, and waterborne movement. Unit assembly at all levels will be routine during operations.

Reference: TRADOC Pam 525-200-3.

Previous OCR: None.

DBS 97-034. Mobility - Soldier's Load.

Description: As the soldier's battlefield capabilities increase the associated equipment weight and volume will decrease. Soldier subsystems will be integrated systems with fused technologies. For extended operations dismounted forces will be augmented with and employ ground and air manned and robotic platforms for movement of noncombat essential equipment and sustainment.

Reference: TRADOC Pam 525-200-3.

Previous OCR: DBS25.

DBS 97-040. Nonlethal Capabilities.

Description: Dismounted forces will have an adjunct capability to lethality that will allow the application of effective levels of force without causing a lethal or permanent damaging effect on people and materiel, military and non-combatant. Nonlethal capabilities will always be employed in addition to lethal capabilities as a case by case alternative to the ever-present lethal combat power.

Reference: TRADOC Pam 525-200-3.

Previous OCR: DBS02B.

DBS 97-041. Nonlethal Capabilities - Control Crowds.

Description: Non-combatant crowds will be controlled by preventing mass crowd action and/or causing the crowd to disperse and/or causing it to move to another location but keeping it intact or keeping it from moving to another location and keeping it intact. Nonlethal crowd control will not cause permanent injury to individuals in the crowd.

Reference: TRADOC Pam 525-200-3.

Previous OCRs: DBS02B.

DBS 97-042. Nonlethal Capabilities -

Control Individuals.

Description: Individuals will be controlled by preventing flight, preventing crowd provoking action, preventing trespass, preventing injury to materiel or facilities. Individuals may be formed into a crowd or added to a crowd and controlled as a crowd. Nonlethal control of individuals will not cause permanent injury to those individuals.

Reference: TRADOC Pam 525-200-3.

Previous OCR: DBS02B.

DBS 97-043. Nonlethal Capabilities - Control Vehicle Movement and Function.

Description: Vehicles (ground, air, and water surface) will be controlled by permanently or temporarily preventing operation or causing an operating failure without causing permanent injury to its human occupants.

Reference: TRADOC Pam 525-200-3,.

Previous OCR: DBS02B.

DBS 97-050. Dismounted Command and Control - Dismounted Forces Digitization.

Description: Dismounted battlespace combat systems and associated support systems will be digital and capable of providing data linkage to each battlefield element it is required to synchronize with, from the individual soldier through brigade level. During forced entry, multinational operations or otherwise on demand, data will be provided via direct linkage to elements above brigade including joint, national, and coalition commands from any data generating element in the force. Along with being vertical, data linkage will be horizontal at each level from soldier to brigade. Information management and user tagged data will prevent information overload.

Reference: TRADOC Pam 525-200-3.

Previous OCR: DBS20.

DBS 97-051. Dismounted Command and Control - Dismounted Soldier Communications and Information.

Description: Each soldier will be equipped with light weight, miniature inter/intra soldier, secure wireless communications. An individual data processing capability will be integrated with the soldier's subsystems (Communications, weapon, day/night weapon sights, night vision sensors, power generation and storage management capability, environmental and physiological sensors, small arms fire and mine detection and location sensors, navigation system, and the data display system) equipment will be required to reduce soldier load while maintaining secure communications and information flow.

Reference: TRADOC Pam 525-200-3.

Previous OCR: DBS21.

DBS 97-052. Dismounted Command and Control- Automated Planning and Rehearsal.

Description: Dismounted forces require the capability to conduct automated planning and rehearsals to include split-based C4, situational awareness, and logistics support.

Reference: TRADOC Pam 525-200-3.

Previous OCR: DBS19.

DBS 97-053. Dismounted Command and Control - Increased Control of Battle Tempo.

Description: Battle command systems are required to provide horizontal and vertical command and control capability in near real time, enabling dismounted forces to operate at a faster tempo than the dismounted enemy. Included is the capability to gather, analyze, and disseminate information on both friendly and enemy forces from multiple sources.

Reference: TRADOC Pam 525-200-3.

Previous OCR: DBS17.

DBS 97-061. Security.

Description: Dismounted forces require 360 degree security 100% of the time. When part of a brigade or larger organization, security for the task force is achieved by providing an integrated portion of the upper echelon's security. During and immediately following a forced entry, dismounted forces up to battalion level will be capable of establishing and maintaining security with organic capabilities. Augmentation is required to maintain security during establishment of the lodgment. Security of the forced entry combat force will be provided for it at the remote marshaling base (REMAB) and at the intermediate staging base (ISB). During support to operations other than war and during support to civil authority, particularly when operating independently, organic assets will provide security for extended periods, often for mission duration.

Reference: TRADOC Pam 525-200-3.

Previous OCR: None.

DBS 97-062. Tactical Intelligence - Dismounted Reconnaissance and Surveillance.

Description: Dismounted forces will be capable of tactical reconnaissance throughout dismounted battlespace with organic capabilities.

Reference: TRADOC Pam 525-200-3.

Previous OCR: None.

DBS 97-063. Tactical Intelligence - Indicators and Warnings for Dismounted Soldiers.

Description: Forces operating in dismounted battlespace will have the capability to access the full spectrum of intelligence information. This includes the capability to collect, analyze, produce, and disseminate timely intelligence data. Soldiers require a sensor to soldier link for information collected in their battlespace. Required intelligence data includes indicators of changes in environmental conditions, probable enemy actions, and enemy characterization/classification. Warnings include enemy movement, impending severe environmental conditions, tactical and non-combatant/industrial chemical and biological threats.

Reference: TRADOC Pam 525-200-3.

Previous OCR: DBS10.

DBS 97-064. Tactical Intelligence - Drop Zone and Landing Zone Intelligence.

Description: Forces moving by air will have enroute near real time information regarding drop zones and landing zones, to include obstacles and hazards.

Reference: TRADOC Pam 525-200-3.

Previous OCR: DBS11.

DBS 97-065. Tactical Intelligence - Poststrike Assessment/Battle Damage Assessment.

Description: Forces require significantly enhanced capabilities for post strike and battle damage assessments. This ability is required to generate and quickly disseminate assessments to forces actively engaging the target as well as command posts and fire direction centers engaging the target set.

Reference: TRADOC Pam 525-200-3.

Previous OCR: DBS12.

DBS 97-066. Tactical Intelligence - Target Acquisition.

Description: Capabilities are required which provide vertical and horizontal, near real time, target acquisition information throughout the taskforce. This capability is key to massing effects of fires without massing friendly forces. Overmatching range, all spectrum target

acquisition will characterize the capabilities of individual soldier weapons and dismounted

indirect fire systems. Target acquisition systems will provide real time or near real time sensor to shooter linkages, integrated with both brigade and below systems and echelon above brigade systems, including systems of other services, national level systems, and those of coalition forces.

Reference: TRADOC Pam 525-200-3.

Previous OCRs: DBS13, DBS14.

DBS 97-067. Tactical Intelligence - Data Fusion.

Description: Dismounted forces will have near real time intelligence information resulting from data fusion and interoperability of intelligence sources.

Reference: TRADOC Pam 525-200-3.

Previous OCR: DBS18.

DBS 97-070. Training and Leader Development.

Description: Training and leader development is required at both the institutional level and the organizational level to maintain combat ready soldiers and units. Success on the battlefield will require interrelated and supporting individual, institutional and unit training.

Reference: TRADOC Pam 525-200-3.

Previous OCR: DBS26.

DBS 97-099. Capability Integration and Fusion.

Description: Dismounted battlespace capabilities will be integrated throughout dismounted forces and fused into a single capability where feasible, providing forces that are lethal, survivable, strategically mobile and tactically agile. Training will be imbedded. Soldier and unit sensors and weapon systems will have multiple functions.

Reference: TRADOC Pam 525-200-3.

Previous OCR: None.

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Appendix A

References

FM 5-104
General engineering

FM 100-5
Operations

FM 100-6
Information Operations

FM 100-19
Domestic Support Operations

Joint Pub 4-04
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TRADOC Reg 11-1
Battlefield Laboratories Program

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Combat Developments for Battlefield Automated Systems

TRADOC Reg 71-4
TRADOC Scenarios for Combat Development

TRADOC Reg 71-9
USER test and Evaluation

TRADOC Reg 71-14
Procedures for Implementing Nuclear and NBC Contamination Survivability Into the Development and Acquisition Process

TRADOC Reg 71-18
Combined Arms in a Nuclear/Chemical Environment (CANE) Implementation Program

TRADOC Reg 350-35
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TRADOC Reg 350-70
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TRADOC Reg 351-10
Institutional Leader Education and Training

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TRADOC Pam 525-50
Operational Concept for Combat Health Support

TRADOC Pam 525-51 (R)
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TRADOC Pam 525-54 (R)
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TRADOC Pam 525-57 (S)
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TRADOC Pam 525-58
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TRADOC Pam 525-64 (R)
U.S. Army Operational Concept for Criminal Investigation Command Support on the AirLand Battlefield

TRADOC Pam 525-68
Concept for Modularity

TRADOC Pam 525-69
Concept for Information Operations

TRADOC Pam 525-70
Battlefield Visualization Concept

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Army Airspace Command and Control (A2C2)

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Concept for Nonlethal Capabilities in Army Operations

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U.S. Army Ordnance Corps Strategic Vision

U.S. Army Transportation Corps Strategic Vision

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White Paper - Environmental Considerations in Army Operational Doctrine

Appendix B

Combat Developer Designator

AD	Air Defense School
AG	Adjutant General School
AR	Armor School
AV	Aviation School
AVB	Aviation Battle Lab
BCG	Battle Command (Gordon) Battle Lab
BCH	Battle Command (Huachuca) Battle Lab
BCL	Battle Command (Leavenworth) Battle Lab
CH	Chaplain School

CM Chemical School

CSS Combat Service Support Battle Lab

DBS Dismounted Battle Space Battle Lab

DSA Depth and Simultaneous Attack Battle Lab

EEL Early Entry, Lethality and Survivability Battle Lab

EN Engineer School

FA Field Artillery School

FI Finance School

IN Infantry School

JA Judge Advocate

MD Medical Department

MI Military Intelligence School

MMB Mounted Maneuver Battle Lab

MP Military Police School

MSB Maneuver Support Battle Lab

OD Ordnance Corps School

QM Quartermaster School

SC Signal Corps School

SF Special Forces

SP Space Operations

TC Transportation Corps School

TR TRADOC

TRD Training Research&Development

Appendix C

Future Operational Capability Crosswalk Matrix

	DOMINATE MANEUVER	PRECISION STRIKE	WIN INFO WAR	PROTECT THE FORCE	PROJECT AND SUSTAIN
ADJUTANT GENERAL DCD			CSS97-005		CSS 97-005

AIR DEFENSE ARTILLERY	AD 97-001	AD 97-002, AD 97-003, AD 97-007, AD 97-013	AD 97-004, AD 97-005, AD 97-011	AD 97-001, AD 97-002, AD 97-006, AD 97-008, AD 97-009, AD 97-011	AD 97-001, AD 97-002, AD 97-010, AD 97-012
AVIATION DCD	AV 97-001, AV 97-002, AV 97-003, AV 97-006, AV 97-008, AV 97-010, AV 97-011, AV 97-012, AV 97-013, AV 97-015, AV 97-016, AV 97-018	AV 97-001, AV 97-006	AV 97-001, AV 97-002, AV 97-003, AV 97-004, AV 97-005, AV 97-006, AV 97-007, AV 97-009, AV 97-011, AV 97-012, AV 97-018, AV 97-011	AV 97-001, AV 97-005, AV 97-006, AV 97-007, AV 97-009, AV 97-012	AV 97-001, AV 97-002, AV 97-003, AV 97-008, AV 97-009, AV 97-010, AV 97-011, AV 97-013, AV 97-014, AV 97-015, AV 97-017, AV 97-018
ARMOR DCD	AR 97-001, AR 97-002, AR 97-004, AR 97-005, AR 97-014	AR 97-001, AR 97-004, AR 97-014	AR 97-004, AR 97-006, AR 97-007	AR 97-003, AR 97-005, AR 97-006, AR 97-009, AR 97-010, AR 97-011, AR 97-012, AR 97-015	AR 97-002, AR 97-005, AR 97-006, AR 97-008, AR 97-012, AR 97-013, AR 97-016
AVIATION BATTLE LAB					
BATTLE COMMAND (GORDON)	BCG 97-001, BCG 97-004	BCG 97-001, BCG 97-002, BCG 97-003, BCG 97-004, BCG 97-005, BCG 97-006, BCG 97-007, BCG 97-008, BCG 97-013		BCG 97-001, BCG 97-002	BCG 97-001, BCG 97-002, BCG 97-003, BCG 97-005, BCG 97-006, BCG 97-007
BATTLE COMMAND (HUACHUCA)					
BATTLE COMMAND (LEAVENWORTH)	BCL 97-001, BCL 97-003, BCL 97-004, BCL 97-007, BCL 97-007, BCL 97-010, BCL 97-017	BCL 97-001, BCL 97-002, BCL 97-003, BCL 97-004, BCL 97-005, BCL 97-006, BCL 97-007, BCL 97-010, BCL 97-012, BCL 97-013, BCL 97-014, BCL 97-015, BCL 97-017		BCL 97-003, BCL 97-011, BCL 97-016, BCL 97-017	BCL 97-001, BCL 97-002, BCL 97-003, BCL 97-006, BCL 97-007, BCL 97-008, BCL 97-009, BCL 97-010, BCL 97-011, BCL 97-016, BCL 97-017
CHAPLAIN DCD			CH 97-001, CH 97-002, CH 97-003, CH 97-004, CH 97-008,	CH 97-004, CH 97-005, CH 97-006, CH 97-007, CH 97-009, CH 97-010	
CHEMICAL DCD	CM 97-001, CM 97-005, CM 97-007, CM 97-008, CM 97-009, CM 97-010, CM 97-011, CM 97-012, CM 97-014, CM 97-016	CM 97-001, CM 97-002		CM 97-001, CM 97-002, CM 97-003, CM 97-004, CM 97-005, CM 97-006, CM 97-012	CM 97-005, CM 97-012, CM 97-013, CM 97-015, CM 97-016
COMBAT SERVICE SUPPORT BATTLE LAB					CS 97-001, CS 97-002, CS 97-003, CS 97-004, CS 97-005

DEPTH & SIMULTANEOUS ATTACK BATTLE LAB	DSA 97-019, DSA 97-020, DSA 97-027	DSA 97-001, DSA 97-002, DSA 97-009, DSA 97-010, DSA 97-011, DSA 97-014, DSA 97-015, DSA 97-016, DSA 97-019, DSA 97-020, DSA 97-021, DSA 97-023, DSA 97-024, DSA 97-025, DSA 97-026	DSA 97-006, DSA 97-007, DSA 97-008, DSA 97-009, DSA 97-010, DSA 97-011, DSA 97-012, DSA 97-013, DSA 97-014, DSA 97-015, DSA 97-016, DSA 97-017, DSA 97-020, DSA 97-021, DSA 97-97-022	DSA 97-003, DSA 97-004, DSA 97-005, DSA 97-010, DSA 97-011, DSA 97-014, DSA 97-015, DSA 97-016, DSA 97-018, DSA 97-025, DSA 97-028, DSA 97-030	DSA 97-009, DSA 97-012, DSA 97-018, DSA 97-027, DSA 97-029
DISMOUNTED BATTLESPACE BATTLE LAB	DBS 97-010, DBS 97-011, DBS 97-012, DBS 97-013, DBS 97-017, DBS 97-018, DBS 97-030, DBS 97-031, DBS 97-032, DBS 97-033, DBS 97-043, DBS 97-062, DBS 97-070, DBS 97-099	DBS 97-010, DBS 97-011, DBS 97-012, DBS 97-015, DBS 97-016, DBS 97-018, DBS 97-040	DBS 97-010, DBS 97-011, DBS 97-014, DBS 97-0176, DBS 97-017, DBS 97-020, DBS 97-023, DBS 97-033, DBS 97-050, DBS 97-051, DBS 97-052, DBS 97-053, DBS 97-063, DBS 97-064, DBS 97-065, DBS 97-066, DBS 97-067	DBS 97-014, DBS 97-020, DBS 97-021, DBS 97-022, DBS 97-023, DBS 97-024, DBS 97-040, DBS 97-041, DBS 97-042, DBS 97-060	DBS 97-032A, DBS 97-032B, DBS 97-033,
EARLY ENTRY AND SIMULTANEOUS ATTACK BATTLE LAB	EEL 97-005, EEL 97-006, EEL 97-012, EEL 97-013, EEL 97-015	EEL 97-001, EEL 97-004, EEL 97-005, EEL 97-012, EEL 97-013	EEL 97-005, EEL 97-011, EEL 97-012, EEL 97-013, EEL 97-021, EEL 97-022, EEL 97-023, EEL 97-024, EEL 97-025	EEL 97-011, EEL 97-013	EEL 97-002, EEL 97-003, EEL 97-006, EEL 97-007, EEL 97-016, EEL 97-017, EEL 97-018, EEL 97-019, EEL 97-020, EEL 97-021, EEL 97-022, EEL 97-024, EEL 97-025
ENGINEERS DCD	EN 97-001, EN 97-002, EN 97-004, EN 97-005, EN 97-006, EN 97-007, EN 97-008, EN 97-009, EN 97-010, EN 97-011, EN 97-012, EN 97-013, EN 97-018, EN 97-021	EN 97-001, EN 97-002, EN 97-003, EN 97-004, EN 97-011,	EN 97-001, EN 97-002, EN 97-005, EN 97-006, EN 97-009, EN 97-011 , EN 97-012, EN 97-013	EN 97-005, EN 97-007, EN 97-008, EN 97-009, EN 97-010, EN 97-012, EN 97-013, EN 97-018, EN 97-021	EN 97-001, EN 97-002, EN 97-003, EN 97-004, EN 97-005, EN 97-006, EN 97-007, EN 97-008, EN 97-009, EN 97-012- 030
FIELD ARTILLERY DCD	FA 97-001, FA 97-002, FA 97-005, FA 97-007, FA 97-008, FA 97-010, FA 97-011, FA 97-012, FA 97-013, FA 97-014, FA 97-015, FA 97-019, FA 97-020, FA 97-021, FA 97-022, FA 97-024, FA 97-025, FA 97-028, FA 97-032, FA 97-036, FA 97-037	FA 97-001, FA 97-002, FA 97-005, FA 97-007, FA 97-008, FA 97-010, FA 97-011, FA 97-012, FA 97-013, FA 97-014, FA 97-015, FA 97-019, FA 97-020, FA 97-021, FA 97-022, FA 97-024, FA 97-025, FA 97-029, FA 97-035, FA 97-036	FA 97-005, FA 97-006, FA 97-007, FA 97-008, FA 97-009, FA 97-013, FA 97-014, FA 97-019, FA 97-019 , FA 97-022, FA 97-023, FA 97-024, FA 97-027, FA 97-029, FA 97-036, FA 97-037	FA 97-003, FA 97-004, EN 97-005, FA 97-010, FA 97-011, FA 97-013, FA 97-018, FA 97-026, FA 97-027, FA 97-028, FA 97-029, FA 97-032, FA 97-033, FA 97-034	FA 97-005, FA 97-011, FA 97-016, FA 97-017, FA 97-018, FA 97-020, FA 97-021, FA 97-025, FA 97-026, FA 97-030, FA 97-031, FA 97-032, FA 97-035, FA 97-037

FINANCE DCD				FI 97-009, FI 97-010	FI 97-001, FI 97-002, FI 97-003, FI 97-004, FI 97-005, FI 97-006, FI 97-007, FI 97-008, FI 97-009, FI 97-010
INFANTRY DCD	IN 97-100, IN 97-110, IN 97-111, IN 97-112, IN 97-113, IN 97-119, IN 97-120, IN 97-130, IN 97-140, IN 97-150, IN 97-160, IN 97-180, IN 97-300, IN 97-310, IN 97-320, IN 97-430, IN 97-621, IN 97-620, IN 97-630, IN 97-640, IN 97-660	IN 97-100, IN 97-110, IN 97-11, IN 97-112, IN 97-113, IN 97-119, IN 97-120, IN 97-130, IN 97-140, IN 97-150, IN 97-160, IN 97-180	IN 97-320, IN 97-500, IN 97-510, IN 97-520, IN 97-530, IN 97-600, IN 97-630, IN 97-621, IN 97-622, IN 97-630, IN 97-640, IN 97-650, IN 97-660, IN 97-670, IN 97-700, IN 97-990	IN 97-200, IN 97-210, IN 97-220, IN 97-230, IN 97-240, IN 97-330, IN 97-400, IN 97-410, IN 97-420, IN 97-430, IN 97-610, IN 97-621, IN 97-630	IN 97-300, IN 97-301, IN 97-310, IN 97-330, IN 97-621
INFORMATION SYSTEMS			IS 97-001, IS 97-002, IS 97-003, IS 97-004, IS 97-003	IS 97-001, IS 97-002, IS 97-003, IS 97-004, IS 97-004	IS 97-001, IS 97-002, IS 97-003, IS 97-004, IS 97-005
JUDGE ADVOCATE					
MEDICAL DCD			MD 97-002	MD 97-001, MD 97-003, MD 97-004, MD 97-005, MD 97-006, MD 97-007, MD 97-008, MD 97-009, MD 97-010, MD 97-011, MD 97-012, MD 97-013	MD 97-001, MD 97-002, MD 97-005, MD 97-008, MD 97-009, MD 97-010, MD 97-013
MILITARY INTELLIGENCE DCD			MI 97-001, MI 97-002, MI 97-003, MI 97-004, MI 97-005, MI 97-006, MI 97-007, MI 97-008, MI 97-009, MI 97-011		MI 97-010, MI 97-011
MOUNTED MANEUVER BATTLESPACE BATTLE LAB	MMB 97-001, MMB 97-002 MMB 97-003, MB 97-005, MMB 97-007, MMB 97-010, MMB 97-011, MMB 97-012, MMB 97-017, MMB 97-018, MMB 97-019	MMB 97-001, MMB 97-002	MMB 97-002, MMB 97-017, MMB 97-018, MMB 97-019, MMB 97-020	MMB 97-008, MMB 97-009, MMB 97-010, MMB 97-011, MMB 97-012, MMB 97-013, MMB 97-014, MMB 97-015, MMB 97-016	MMB 97-003, MMB 97-004, MB 97-006, MMB 97-00
MILITARY POLICE DCD	MP 97-005, MP 97-006, MP 97-007, MP 97-008	MP 97-002	MP 97-003, MP 97-004, MP 97-006, MP 97-007, MP 97-008, MP 97-009, MP 97-011, MP 97-012, MP 97-015	MP 97-001, MP 97-010, MP 97-013, MP 97-014	MP 97-007, MP 97-008, MP 97-009, MP 97-016
MANEUVER SUPPORT BATTLE LAB	MSB 97-001, MSB 97-002, MSB 97-005, MSB 97-006, MSB 97-007, MSB 97-008, MSB 97-009, MSB 97-014	MSB 97-013, MSB 97-014	MSB 97-007, MSB 97-011, MSB 97-012, MSB 97-014	MSB 97-003, MSB 97-004, MSB 97-005, MSB 97-006, MSB 97-008, MSB 97-009, MSB 97-010, MSB 97-012	MSB 97-003, MSB 97-011, MSB 97-013

ORDNANCE DCD	OD 97-012, OD 97-013		OD 97-008, OD 97-011	OD 97-009, OD 97-010, OD 97-011, OD 97-012, OD 97-013	OD 97-001, OD 97-002, OD 97-003, OD 97-004, OD 97-005, OD 97-006, OD 97-007, OD 97-014, OD 97-016, OD 97-017
QUARTERMASTER CORPS DCD				QM 97-002, QM 97-003, QM 97-005, QM 97-006, QM 97-007, QM 97-008, QM 97-009, QM 97-009	QM 97-001, QM 97-002, QM 97-003, QM 97-004, QM 97-005, QM 97-006, QM 97-007, QM 97-008, QM 97-009, QM 97-010, QM 97-011
SIGNAL DCD	SC 97-004, SC 97-006		SC 97-001, SC 97-002, SC 97-003, SC 97-004, SC 97-005, SC 97-006, SC 97-007	SC 97-004, SC 97-006, SC 97-007	SC 97-004, SC 97-006, SC 97-007
SPACE OPERATIONS	SP 97-002, SP 97-004, SP 97-009, SP 97-010, SP 97-011, SP 97-015, SP 97-016, SP 97-020, SP 97-021	SP 97-002, SP 97-009, SP 97-014, SP 97-015, SP 97-016, SP 97-020	SP 97-001, SP 97-002, SP 97-004, SP 97-005, SP 97-006, SP 97-007, SP 97-008, SP 97-009, SP 97-011, SP 97-013, SP 97-014, SP 97-015, SP 97-016, SP 97-017, SP 97-018, SP 97-021	SP 97-002, SP 97-003, SP 97-012, SP 97-016, SP 97-018, SP 97-020	SP 97-002, SP 97-004, SP 97-006, SP 97-009, SP 97-010, SP 97-013, SP 97-019
DCS-TRAINING	TRD 97-006, TRD 97-007, TRD 97-010, TRD 97-017		TRD 97-001, TRD 97-002, TRD 97-004, TRD 97-006, TRD 97-007, TRD 97-008, TRD 97-009, TRD 97-010, TRD 97-012, TRD 97-013, TRD 97-014, TRD 97-015, TRD 97-016, TRD 97-017	TRD 97-001, TRD 97-003, TRD 97-006, TRD 97-008, TRD 97-010	TRD 97-001, TRD 97-003, TRD 97-004, TRD 97-005, TRD 97-006, TRD 97-007, TRD 97-008, TRD 97-009, TRD 97-010, TRD 97-011, TRD 97-012, TRD 97-013, TRD 97-014, TRD 97-015, TRD 97-016, TRD 97-017, TRD 97-018
TRANSPORTATION CORPS DCD				TC 97-003	TC 97-001, TC 97-002, TC 97-003

Appendix D

OCR/FOC Crosswalk Matrix

Battle Command Battle Lab OCRs

Battle Command Systems

BC01: Battlefield Information Control.

FOC: AV 97-001, AV 97-012, EN 97-001, EN 97-004, EN 97-006, EN 97-007, EN 97-011, EN 97-021, EN 97-030,

MI 97-003, MI 97-004, MI 97-005, MP 97-003, MSB 97-007, MSB 97-012, MSB 97-014.

BC02: Battlefield Information Passage.

FOC: AV 97-001, BCG 97-001, BCL 97-002, CH 97-002, CH 97-005, CH 97-008, EN 97-001, EN 97-006, EN 97-011, MI 97-005, MSB 97-007, MSB 97-012.

BC03: Decision and Planning Support.

FOC: AV 97-003, AV 97-011, BCL 97-003, EN 97-003, EN 97-006, EN 97-007, EN 97-010, EN 97-011, FA 97-015, MI 97-001, MI 97-002, MSB 97-007, MSB 97-012.

BC04: Smart Pull/Brilliant Push.

FOC: BCL 97-004, EN 97-011, MI 97-005, MSB 97-012.

BC05: Information Presentation.

FOC: AV 97-011, BCL 97-005, EN 97-001, EN 97-002, EN 97-003, MI 97-007, MSB 97-007.

BC06: Electronic Tethering.

FOC: AV 97-001, AV 97-011, AV 97-012, BCG 97-005, BCL 97-006, EN 97-001, MI 97-005, MI 97-007.

BC07: Common Picture.

FOC: AV 97-001, AV 97-002, AV 97-011, AV 97-012, BCL 97-001, EN 97-001, EN 97-002, EN 97-004, FA 97-022, MI 97-006, MSB 97-012.

BC08: Split-Based Connectivity.

FOC: AV 97-001, BCG 97-006, EN 97-005, EN 97-006, MI 97-005.

BC09: System Interoperability.

FOC: AV 97-001, BCG 97-002, BCL 97-007, EN 97-005, MI 97-005.

BC10: Target to Shooter Information Fusion.

FOC: AV 97-001, AV 97-005, EN 97-011, MI 97-001, MI 97-004, MI 97-005.

BC11: Hands-Free Operation.

FOC: AV 97-001, BCG 97-004, BCL 97-008, CH 97-001, MI 97-001, MI 97-007.

BC12: Upgrade Exploitation.

FOC: BCL 97-009.

Battle Command Support Teams (BCST)

BC13: Commander to Battle Command Support Teams (BCST) Connectivity.

FOC: BCG 97-013.

BC14: STAFF SUPPORT.

FOC: BCL 97-010.

BC15: Team Building.

FOC: BCL 97-011, MP 97-016.

BC16: Battle Command Support Team (BCST) to CONUS Connectivity.

FOC: MI 97-005.

BC17: Battle Command Support Team (BCST) Footprint.

FOC: BCL 97-010.

BC18: Digitized-Battle Command Support Teams (BCST) to Non-digital Unit Interfacing.

FOC: MI 97-005.

Information Operations

BC19: Information Attack.

FOC: BCL 97-012, EN 97-011, EN 97-013, MI 97-008, MSB 97-009, MSB 97-014.

BC20: Information Protection.

FOC: AV 97-001, BCL 97-013, EN 97-013, MI 97-009, MSB 97-008, MSB 97-020.

BC21: Information Exploitation.

FOC: BCL 97-014, MI 97-003, MI 97-008, MP 97-004.

BC22: Information Enable.

FOC: AV 97-001, BCL 97-015, EN 97-005, MI 97-001, MI 97-004, MI 97-005, MI 97-006, MI 97-007, MP 97-004.

Leader Development

BC23: Commander and Battle Staff Training.

FOC: BCL 97-016, EN 97-030, MI 97-011.

BC24: Force XXI Training.

FOC: BCL 97-017, MI 97-011.

BC25: Joint/Coalition Doctrine.

FOC: BCL 97-018, EN 97-016, MP 97-015.

BC26: Commanding Modular Organizations.

FOC: BCL 97-019.

BC27: Media Impact.

FOC: BCL 97-020.

Combat Service Support

CSS01: Logistics Command, Control, Communication, and Automation (C3A).

FOC: EN 97-003, EN 97-006, IS 97-003, MP 97-009, OD 97-001, OD 97-003, OD 97-005.

CSS02: In-Transit/Total Asset Visibility/Distribution Management.

FOC: CS 97-002, CS 97-005, EN 97-006, MP 97-008.

CSS03: Containerization and Packaging.

FOC: EN 97-028.

CSS04: Operations Other Than War (OOTW).

FOC: CS 97-004, EN 97-028.

CSS05: Medical Command, Control, Communications, Computers, and Intelligence (C4I).

FOC: CS 97-003, MD 97-002.

CSS06: Preventive Medicine.

FOC: MD 97-007.

CSS07: Treatment of Battlefield Wounds, Injuries, and Disease.

FOC: MD 97-003, MD 97-013.

CSS08: Far-forward Surgical Support.

FOC: MD 97-005, MD 97-013.

CSS09: Battlefield Hospitalization.

FOC: EN 97-024, MD 97-006.

CSS10: Patient Evacuation.

FOC: MD 97-001, MD 97-013.

CSS11: Combat Health Logistics System (CHLS) and Blood Management.

FOC: MD 97-008.

CSS12: Medical Laboratory Support.

FOC: MD 97-010.

CSS13: Provision of Combat Health Support in a Biological/Chemical Environment.

FOC: MD 97-004.

CSS14: Combat Stress Control.

FOC: MD 97-009.

CSS15: Dental.

FOC: MD 97-011.

CSS16: Veterinary.

FOC: MD 97-012, MSB 97-004.

CSS17: Logistics Mobility.

FOC: AV 97-009, AV 97-010, EN 97-004, EN 97-006, EN 97-007, EN 97-015, EN 97-016, EN 97-017, EN 97-018, EN 97-019, OD 97-006, TC 97-001, TC 97-002, TC 97-003, TC 97-004, MSB 97-003, MSB 97-006, MSB 97-014.

CSS18: System Sustainment.

FOC: AV 97-010, CS 97-001, OD 97-003, OD 97-004, OD 97-005, OD 97-006, OD 97-007, OD 97-015, OD 97-016.

CSS19: Power Sources and Accessories.

FOC: MI 97-010.

CSS20: Field Services.

FOC: CH 97-009, EN 97-020, EN 97-022, EN 97-023, EN 97-024, QM 97-001, QM 97-002, QM 97-003, QM 97-004, QM 97-005, QM 97-006, QM 97-007, QM 97-009, QM 97-010, QM 97-011.

CSS21: Logistics Survivability.

FOC: AV 97-009, EN 97-012, EN 97-013, EN 97-014, EN 97-027, OD 97-017, MSB 97-003, MSB 97-004, MSB 97-005.

CSS22: Personnel Service Support (PSS).

FOC: CS 97-005; MP 97-009.

CSS23: Logistics Force Design.

FOC: QM 97-008.

CSS24: CSS Training Support.

FOC: EN 97-003, EN 97-030, FI 97-001, FI 97-002, FI 97-004, FI 97-005, FI 97-006, FI 97-007, FI 97-008, MP 97-012.

CSS25: Employment of Non-Military.

FOC: None.

Depth and Simultaneous Attack

DSA01: Extend Ranges of Deep Attack Systems.

FOC: AV 97-006, AV 97-009, EN 97-011, FA 97-001, DSA 97-001.

DSA02: Extend Ranges of Theater Missile Defense Systems.

DSA03: Smart and Brilliant Munitions for Deep Attack.

FOC: AV 97-006, EN 97-010, EN 97-011, FA 97-003, FA 97-034, DSA 97-002, MSB 97-002, MSB 97-014.

DSA04: Theater Missile Two-Tiered Defense.

FOC: DSA 97-003.

DSA05: Enhanced Survivability of Deep Attack Systems.

FOC: AV 97-001, AV 97-007, EN 97-012, EN 97-013, FA 97-003, DSA 97-004.

DSA06: Fratricide Avoidance.

FOC: AV 97-001, AV 97-002, FA 97-004, MP 97-006, DSA 97-005.

DSA07: Real time, On-Board, All-Weather Precision Terrain Location.

FOC: AV 97-002, EN 97-003, FA 97-005, DSA 97-006, MSB 97-007.

DSA08: Robust, Streamlined, Multi-Node Processing.

FOC: FA 97-008, FA 97-023, DSA 97-007.

DSA09: Real time Location and Identification of Targets.

FOC: AV 97-002, AV 97-005, EN 97-007, EN 97-011, FA 97-007.

DSA10: Real time Seamless National Targeting Dissemination.

FOC: AV 97-001, FA 97-006, DSA 97-008.

DSA11: Long Dwell Surveillance At Corps and EAC.

FOC: EN 97-011, DSA 97-009.

DSA12: Day/Night All Weather, All Terrain Sensors.

FOC: AV 97-005, EN 97-001, EN 97-002, EN 97-011, FA 97-007, DSA 97-010, MSB 97-014.

DSA13: Accurate, Real time BDA.

FOC: AV 97-001, EN 97-004, EN 97-011, FA 97-008, MSB 97-003.

DSA14: Rapid Location and Identification of Passive Targets.

FOC: AV 97-005, EN 97-007, FA 97-007, DSA 97-011.

DSA15: Automated Interoperable Communications.

FOC: AV 97-001, FA 97-009, FA 97-013, DSA 97-012.

DSA16: Artificial Intelligence (AI) Decision Aids.

FOC: AV 97-004, EN 97-003, EN 97-011, DSA 97-013.

DSA17: Information Fusion Technology Supporting Precision Strike.

FOC: AV 97-004, EN 97-011, FA 97-024, DSA 97-014.

DSA18: Near Real time Deconfliction of Airspace and Targeting Data.

FOC: AV 97-002, AV 97-012, EN 97-003, FA 97-010, FA 97-035, DSA 97-015.

DSA19: Communications Interoperability Between Joint and Coalition Forces.

FOC: AV 97-001, FA 97-009, DSA 97-016.

DSA20: Terrain Independent Communications and Information Distribution.

FOC: AV 97-001, DSA 97-017.

DSA21: Rapidly Deployable Attack Systems.

FOC: AV 97-008, AV 97-009, DSA 97-018.

DSA22: Enhanced Mobility for TMD and Precision Strike Attack Systems.

FOC: FA 97-011, DSA 97-019.

Dismounted Battlespace

DBS01A: Dismounted Soldier Engagement of Moving and Stationary Targets.

FOC: DBS 97-013.

DBS02A: Increased lethality of dismounted soldier weaponry.

FOC: DBS 97-010, DBS 97-011, MP 97-002.

DBS02B: Dismounted Nonlethal Means.

FOC: DBS 97-040, DBS 97-041,
DBS 97-042,

DBS 97-043, EN 97-010, MP 97-014, MSB 97-013.

DBS03 Increased Dismounted Soldier Target Acquisition Capabilities.

FOC: DBS 97-014.

DBS04A: Smart and intelligent mines.

FOC: DBS 97-018,
EN 97-006, EN 97-010, EN 97-011, MSB 97-002.

DBS05A: Enhanced Dismounted Soldier Indirect Fires.

FOC: DBS 97-012.

DBS06: Passive Capabilities.

FOC: DBS 97-022, MSB 97-004.

DBS07: Active Capabilities.

FOC: DBS 97-021, MSB 97-008.

DBS08: Dismounted Forces Acquisition Countermeasures.

FOC: DBS 97-023, EN 97-012, EN 97-013.

DBS09: Signature Reduction.

FOC: DBS 97-024, EN 97-012, EN 97-013, MP 97-001, MSB 97-008.

DBS10: Indicators and Warnings For Dismounted Soldiers.

FOC: DBS 97-063, EN 97-013, MSB 97-012.

DBS11: Drop Zone and Landing Zone Intelligence.

FOC: DBS 97-064, EN 97-002, EN 97-003.

DBS12: Post Strike Assessments/Battle Damage Assessments.

FOC: DBS 97-65, EN 97-027.

DBS13: Integrated Target Acquisition.

FOC: AV 97-005, DBS 97-066.

DBS14: Extended Range of Target Acquisition.

FOC: AV 97-005, DBS 97-066.

DBS15: Sensor to Shooter Linkages.

FOC: DBS 97-016.

DBS16: Improved Weapons Pointing and Control.

FOC: DBS 97-015,
MP 97-005.

DBS17: Increased Control of Battle Tempo.

FOC: AV 97-001, DBS 97-053, MP 97-008.

DBS18: Near Real Time Data Fusion.

FOC: DBS 97-067.

DBS19: Automated Planning and Rehearsal.

FOC: DBS 97-052, EN 97-003, EN 97-006.

DBS20: Dismounted Digitization.

FOC: DBS 97-50, MP 97-003.

DBS21: Dismounted Soldier Communications and Information.

FOC: DBS 97-051.

DBS22: Rapid Breaching of Obstacles by Dismounted Forces.

FOC: DBS 97-033, EN 97-007, EN 97-008, EN 97-009, MSB 97-001, MSB 97-006.

DBS23: Tactical Dismounted Mobility.

FOC: DBS 97-030, EN 97-009, MSB 97-001.

DBS24: Mobility Enhancements.

FOC: DBS 97-031, EN 97-007, EN 97-009.

DBS25: Reduced Soldier Load.

FOC: DBS 97-032, MP 97-013.

DBS26: Training and Leader Development.

FOC: DBS 97-070.

Mounted Battle Space

MTD01: Firepower.

FOC: AV 97-006, EN 97-011, MP 97-002, MMB 97-001, MSB 97-002.

MTD02: Target Acquisition.

FOC: AV 97-001, AV 97-002, AV 97-004, AV 97-005, EN 97-011, MMB 97-002.

MTD03: Mobility.

FOC: AV 97-002, AV 97-007, AV 97-008, AV 97-009, EN 97-008, EN 97-009, EN 97-027, FA 97-011, MP 97-001, MMB 97-003, MSB 97-001, MSB 97-006.

MTD04: Advanced Propulsion.

FOC: AV 97-008, AV 97-009, FA 97-017, MMB 97-004.

MTD05: In-Stride Natural and Man-made Obstacle Avoidance /Breaching.

FOC: EN 97-004, EN 97-006, EN 97-007, EN 97-008, MMB 97-005, MSB 97-001, MSB 97-006.

MTD06: Power Generation.

FOC: CH 97-006, CH 97-007, EN 97-024, MMB 97-006.

MTD07: Survivability.

FOC: AV 97-004, AV 97-007, EN 97-009, EN 97-011, EN 97-012, EN 97-013, EN 97-027, MP 97-001, MMB 97-007, MSB 97-003, MSB 97-004, MSB 97-012.

MTD08: Low Signature/Low Observable.

FOC: AV 97-007, EN 97-013, MMB 97-008, MSB 97-008.

MTD09: Smoke and Obscurants.

FOC: EN 97-013, MP 97-001, MMB 97-009, MSB 97-004.

MTD10: Susceptibility to Threat Detection.

FOC: AV 97-007, EN 97-013, MMB 97-010.

MTD11: Individual Protective Equipment for Mounted Forces.

FOC: AV 97-007, MP 97-001, MP 97-013, MMB 97-011, MSB 97-004.

MTD12: Prevention of Fratricide.

FOC: AV 97-002, AV 97-012, MP 97-006, MMB 97-012, MSB 97-006.

MTD13: NBC Decontamination.

FOC: AV 97-007, MMB 97-013.

MTD14: Mounted Command and Control on the Move (C2OTM).

FOC: AV 97-001, AV 97-004, AV 97-011, MMB 97-014.

MTD15: Digitization of the Mounted Force.

FOC: AV 97-001, AV 97-004, MP 97-005, MMB 97-015, MSB 97-007.

MTD16: Mounted Forces Situational Awareness.

FOC: AV 97-001, AV 97-002, EN 97-003, MMB 97-014, MSB 97-004, MSB 97-007.

MTD17: Battle Planning /Rehearsal.

FOC: EN 97-006, MP 97-012, MMB 97-017.

MTD18: Command Posts (CP).

FOC: AV 97-018, MMB 97-017.

MTD19: Sensors for Mounted Forces.

FOC: AV 97-002, AV 97-005, AV 97-007, EN 97-004, EN 97-007, MMB 97-018.

MTD20: Simulation.

FOC: EN 97-003, EN 97-030, MP 97-012.

Early Entry Lethality and Survivability

EEL01: Precision Line of Sight Munitions and Weapon Systems.

FOC: AV 97-006, EEL 97-001.

EEL02: Drop Zone Assembly.

FOC: EEL 97-002.

EEL03: Suppressive Fire.

FOC: EEL 97-003.

EEL04: Precision Non-Line of Sight Munitions and Weapon Systems.

FOC: AV 97-006, EEL 97-004, EN 97-011, FA 97-021, FA 97-26.

EEL05: Identify Targets.

FOC: AV 97-005, EEL 97-005.

EEL06: Nonlethal Munitions.

FOC: EEL 97-006, EN 97-010, MP 97-014, MSB 97-013.

EEL07: Remote Early Entry Forces.

FOC: CM 97-002, EEL 97-007, EN 97-004, EN 97-011.

EEL08: Soldier/Equipment Protection.

FOC: AV 97-007, CM 97-003, CM 97-004, EEL 97-008, EN 97-014, MP 97-010, MSB 97-004.

EEL09: Soldier/Equipment Camouflage.

FOC: AV 97-007, EEL 97-009, EN 97-013, MSB 97-008.

EEL10: Deception Capabilities.

FOC: EEL 97-010, EN 97-013, MSB 97-005, MSB 97-009.

EEL11: Situation Awareness.

FOC: AV 97-001, AV 97-002, AV 97-012, EEL 97-011, EN 97-003.

EEL12: Real Time Targeting.

FOC: AV 97-005, EEL 97-012, EN 97-011.

EEL13: Identify and Locate Nontraditional Signatures.

FOC: AV 97-005, EEL 97-013.

EEL14: Identify, Locate and Defeat targets using Traditional and Nontraditional Signatures.

FOC: AV 97-005, EEL 97-014, EN 97-011.

EEL15: Space-based Early Warning.

FOC: EEL 97-015, MP 97-011.

EEL16: Rapid Supply/Resupply of Early Entry Forces.

FOC: AV 97-009, AV 97-010, EEL 97-016,

EN 97-007, EN 97-012, EN 97-014, EN 97-015, EN 97-016, EN 97-017, EN 97-018, EN 97-019, EN 97-020, EN 97-022, EN 97-023.

EEL17 Force Projection Operations.

FOC: AV 97-012, EEL 97-017, EEL 97-015, EN 97-016, EN 97-017, EN 97-018, EN 97-019.

EEL18: Rapid Insertion of Army Equipment and Aviation.

FOC: AV 97-008, AV 97-009, EN 97-018.

EEL19: Host/Nearby Nation Support.

FOC: CH 97-004, EEL 97-019.

EEL20: Vessel Discharge.

FOC: EEL 97-020, EN 97-003, EN 97-021.

EEL21: Constructive Simulations.

FOC: EEL 97-021, EN 97-030.

EEL22: Mission Planning Tools.

FOC: AV 97-003, EEL 97-022, EN 97-005, EN 97-006.

EEL23: Miniaturized Soldier Communication System.

FOC: CH 97-001, EEL 97-023.

EEL24: Airborne C4I.

FOC: AV 97-001, AV 97-011, EEL 97-024.

Training Research & Development

TRD01. Provide accessible, cost-effective training that is environmentally sensitive, safe, versatile and realistic.

FOC: AV 97-014, AV 97-015, AV 97-016, AV 97-017, AV 97-018, CH 97-003, EN 97-027, EN 97-030, MP 97-012, TRD 97-012, TRD 97-013, TRD 97-014, TRD 97-015, TRD 97-016, MSB 97-007.

TRD02. Train leadership skills appropriate for any event along the range of military operations.

FOC: EN 97-030, TRD 97-002, TRD 97-004.

TRD03. Prepare leaders and soldiers to be adaptable and innovative.

FOC: EN 97-003, EN 97-006, TRD 97-003 .

TRD04. Train for contingency missions.

FOC: EN 97-003, TRD 97-001, TRD 97-006.

TRD05 Promote Joint, combined and Interagency perspective in training.

FOC: EN 97-003, EN 97-030, TRD 97-007, MSB 97-007.

Appendix E

FOC Keywords Index

Keyword index provides a crosswalk from the keyword to the Operational Capability Requirements. The FOC/OCR crosswalk in Appendix C will provide the applicable FOCs associated with the OCRs.

Accurate, real time BDA DSA13

Active Capabilities DBS07

Advanced Propulsion MTD04

Airborne C4I EELS24

Artificial Intelligence DSA16

Automated Interpretable Communications

DSA15

Automated Planning and Rehearsal DBS19

Battle Command Support Teams (BCST)

BC13

Battlefield Hospitalization CSS09

Battlefield Information Control BC01

Battle Planning/Rehearsal MTD17

Collecting Cross Cueing Sensors Processing

Distributing

Battlefield Information Passage BC02

Information Architecture Electromagnetic

Spectrum

BCST CONUS Connectivity BC16

BCST Footprint BC17

BCST Non-Digital Unit Interfacing BC18

Combat Health Logistics System (CHLS)

and Blood Management CSS11

Combat Health Support in a

Biological/Chemical Environment CSS13

Combat Stress Control CSS14

Command and Battle Staff Training BC23

Command Modular Organization BC26

Command Posts (CP) MTD18

Common Picture BC07

Communications Interpretability Joint and
Coalition Forces DSA19

Constructive Simulation EELS21

Containerization and Packaging CSS03

CSS Training Support CSS24

Day/Night All Weather, All Terrain Sensor DSA12

Deception Capabilities EELS10

Decision and Planning Support BC03

Decision Aids

Deep Attack Systems DSA01

Dental CSS15

Medical Communication for Combat Causality
Care (MC4)

Digitization of the Mounted Force MTD15

Dismounted Digitization DBS20

Dismounted Forces Acquisition Countermeasures
DBS08

Dismounted Nonlethal Means DBS02B

Dismounted Soldier Communication and
Information DBS21

Dismounted Soldier Engagement of Moving and
Stationary Targets DBS01

Drop Zone and Landing Zone Intelligence DBS11

Drop Zone Assembly EELS02

Electronic Tethering BC06

Employment of Non-Military CSS25

Enhanced Dismounted Soldier Indirect Fires
DBS05
Enhanced Mobility for TMD and Precision Strike
Attack Systems DSA22
Enhanced Survivability of Deep Attack Systems
DSA05
Extended Range Of Target DBS14
Extended Ranges Of TMD System DSA02
Far-Forward Surgical Support CSS08
Field Services CSS20
Firepower MTD01
Directed Energy
Electro-magnetic Launch
Lasers
Microwave
Particle Beams
Spoken-Human Machine Dialogue
Force Projection EELS17
Force XXI Training BC24
Fratricide Avoidance DSA06
Hands-Free Operation BC11
Enabling Technologies
Host/Nearby Nation Support EELS19
Identify and Locate Non-Traditional Signatures
EELS13
Identify Targets EELS05
Identify, Locate, and Defeat Targets Using
Traditional and Non-Traditional Signatures
EELS14
Improved Weapons pointing and Control
DBS16

In-Stride and man-made Obstacles
Avoidance/Breaching MTD05
In-Transit/Total Asset Visibility/Distribution
Management CSS02
Increased Dismounted Soldier Target
Acquisition Capabilities DBS03
Increased Lethality of Dismounted Soldier
Weaponry DBS02A
Increased Control of Battle Tempo DBS17
Indicators & Warnings For Dismounted
Soldiers DBS10
Individual Protective Equipment for Mounted
Forces MTD11
Information Attack BC19
Information Enable BC22
Information Exploitation BC21
Information Presentation BC05
Information Protection BC20
Information Fusion Technology Supporting
Precision Strike DSA17
Integrated Target Acquisition DBS13
Joint/Coalition Doctrine BC25
Logistics Command, Control,
Communication, & Automation (C3A)
CSS01
Logistics Force Design CSS23
Logistics Mobility CSS17
Logistics Survivability CSS21
Long Dwell Surveillance At Corps And EAC
DSA11
Low Signature/Low Observation MTD08
Media Impact BC27

Medical Command, Control,
Communications, Computers, and
Intelligence (C4I) CSS05
Medical Laboratory Support CSS12
Miniaturized Soldier Communication System
EELS23
Mission Planning Tools EELS22
Mobility Enhancements DBS24
Mobility MTD03
Mounted Command and Control On The Move
(C2OTM) MTD14
Mounted Forces Situational Awareness
MTD16
NBC Decontamination MTD13
Near Real time Data Fusion DBS18
Near-Real time Deconfliction of Airspace
and Targeting Data DSA18
Nonlethal Munitions EELS06
Operations Other than War CSS04
Passive Capabilities DBS06
Patient Evacuation CSS10
Personnel Service Support (PSS) CSS22
International Maritime Satellite(INMARSAT)
Streamlined Automated Logistics
Transmission System (SALTS)
Tri-Service Tactical Communication System
(TRI-TAC)
Post Strike Assessment/Battle Damage
Assessment DBS12
Power Generation MTD06
Power Sources and Accessories CSS19

Precision LOS Munitions and Weapon
System EELS01

Precision NLOS Munitions and Weapon
Systems EELS04

Prevention of Fratricide MTD12

Preventive Medicine CSS06

Rapid Breaching of Obstacles by
Dismounted Forces DBS22

Rapid Insertion of Army Equipment and
Aviation EELS18

Rapid Location and Identification of Passive
Targets DSA14

Rapid Supply/Resupply of Early Entry
Forces EELS16

Rapidly Deployable Attack DSA21

Real time Seamless National Targeting
Dissemination DSA10

Real time Targeting EELS12

Real time Location and Identification of Targets
DSA09

Real time, On Board, All Weather Precision
Terrain Location DSA07

Reduced Soldier Load DBS25

Remote Early Entry Forces EELS07

Robust, Streamlined, Multi-Node Processing
DSA08

Sensor to Shooter Linkage DBS15

Sensors for Mounted Forces MTD19

Signature Reduction DBS09

Simulation MTD20

Situation Awareness EELS11

Smart and Brilliant Munitions for Deep Attack

DSA03

Smart and Intelligent Mines DBS04

Smart Pull/Brilliant Push BC04

Smoke & Obscurants MTD09

Soldier/Equipment Camouflage EELS09

Soldier/Equipment Protection EELS08

Space-based Early Warning EELS15

Split-Based Connectivity BC08

Staff Support BC14

Suppressive Fires EELS03

Survivability MTD07

Ballistic Impact

Electromagnetic Pulse

Overpressure Effects

Thermal Effects

Susceptibility to Threat Detection MTD10

System Interpretability BC09

System Sustainment CSS18

Tactical Dismounted Mobility DBS23

Target Acquisition MTD02

Target to Shooter Information Fusion BC10

Team Building BC15

Terrain Independent Communication and
Information Distribution DSA20

Theater Missile Two-Tiered Defense DSA04

Training and Leader Development DBS26

Treatment of Battlefield Wounds, Injuries,
and Disease CSS07

Upgrade Exploitation BC12

Vessel Discharge EELS20

Veterinary CSS16

Glossary

Section I Abbreviations

ABCS Army Battle Command System

AC Acquisition Corps

ACM Advanced Concept Manager

ACT II Advanced Concepts and Technology II

ACTD Advanced Concepts and Technology Demonstration

AERS Army Education Requirements System

AES Army Experimentation Site

AESO Army Experimentation Site Officer

AI Artificial Intelligence

AIEP Army Ideas for Excellence Program

AIT Automatic Identification Technology

AMC United States Army Materiel Command

AMCD4 Advanced Medical Diagnostics Communications for Combat Casualty

AMEDD Army Medical Department

AMP Army Modernization Plan

AMSAA Army Materiel Systems Analysis Agency

AO area of operation

AOR area of responsibility

ARI Army Research Institute

ARL Army Research Lab

ARM anti-radiation missile

ARO United States Army Research Office

ARPA Advanced Research Projects Agency

ASTMP Army Science and Technology Master Plan

ASTWG Army Science and Technology

ATD Advanced Technology Demonstration

ATM Advanced Trauma Management

ATR Automatic Target Recognition

ATTCS Advanced Tactical Command and Control System

AWE Advanced Warfighting Experiment

BAA Broad Agency Announcement

BAG Budget Aggregate Group

BC Battle Command

BC(G) Battle Command (Gordon)

BC(H) Battle Command (Huachuca)

BC(L) Battle Command (Leavenworth)

BDA Battle Damage Assessment

BIT built-in test

BLEP Battle Lab Experiment Plan

BLESOR Battle Lab Experiment Senior Officer Review

BLITCD Battle Lab Integration, Technology, and Concepts Directorate

BLESS Battle Lab Support Element

BLWE Battle Lab Warfighting Experiment

BMC4I battle management command, control, communications, computers, and intelligence

BoD Board of Directors

BOS Battlefield Operating Systems

BSM Battlefield Spectrum Management

BTT Battle Lab Technology Teams

C2 command and control

C2V command and control vehicle

C2W command and control warfare

C3A command, control, communications, and automation

C4I command, control, communications, computers, and intelligence

CALL Center for Army Lessons Learned

CCD camouflage, concealment, and deception

CCIR commander's critical information requirements

CEAC Cost Evaluation and Analysis Center

CEP Concept Experimentation Program

CEPSARC Concept Experimentation Plan Schedule and Review Committee

CG commanding general
CHLS Combat Health Logistics System
CI Civilian Internee
CINC Commander in Chief
CM cruise missile
COE Common Operating Environment
COIC Critical Operational Issue Criteria
COMSEC communications security
CONUS continental United States
CP command post
C-RISTA Counter-Reconnaissance, Intelligence, Surveillance, and Target Acquisition
CS Combat Support
CSAR Combat Search and Rescue
CSC Combat Stress Control
CSS combat service support
CTC Combat Training Center
D&SA Depth and Simultaneous Attack
DA Department of the Army
DASA(RT) Deputy Assistant Secretary of the Army for Research and Technology
DBS Dismounted Battle Space
DCD Director for Combat Developments
DCSDOC Deputy Chief of Staff for Doctrine
DCSOPS Deputy Chief of Staff for Operations and Plans
DCST Deputy Chief of Staff for Training
DE Directed Energy
DEW directed energy weapons
DFAS Defense Finance and Accounting System
DFBS Defense Finance Battlefield System
DII Defense Information Infrastructure
DIS Distributed Interactive Simulation; Distributed Information Systems
DTLOMS doctrine, training leadership, organization, materiel, and soldier support
DZ drop zone

EAC echelons above corps

ECBRS Enhanced Concept Based Requirements System

ECC Experiment Concept Committee

EEFI essential elements of friendly information

EELS Early Entry Lethality, and Survivability

EMP electromagnetic pulse

EOD explosive ordnance disposal

ET embedded training

FLIR Forward Looking Infrared

FLOT forward line of troops

FOA field operating agency

FOC future operational capability

FORSCOM United States Army Forces Command

FTW Future Technology Workshop

GICOD good idea cut off date

HLA High Level Architecture

HQDA Headquarters, Department of the Army

HTI horizontal technology integration

IAW in accordance with

ICRC International Committee of the Red Cross

IEW Intelligence and Electronics Warfare

IMF Intelligent Minefield

IPL Integrated Priority List

IPPT Integrated Process and Product Team

IRD Independent Research and Development

ISB intermediate staging base

JCS Joint Chiefs of Staff

JFC Joint Force Commander

JTFC Joint Task Force Commander

KIA killed-in-action

LAM Louisiana Maneuvers

LO liaison officer

LOC lines of communication

LOTS logistics over the shore operation

LRRDAP Long Range Research, Development, and Acquisition Plan

LZ landing zone

MACOM major Army command

MBS Mounted Battle Space

MC4I medical command, control, communications, computers, and intelligence

MDEP Management Decision Package

MEDEVAC medical evacuation

MEL Military Education Level

MHE materiel handling equipment

MOA Memorandum of Agreement

MOU Memorandum of Understanding

MOUT military operations on urbanized terrain

MP military police

MRDALC Medical, Research, Development, Acquisition, and Logistics Command

NBC nuclear, biological, chemical

NCA national command authority

NDI Non-Developmental Items

NGIC National Guard Intelligence Center

NGO non-government organization

NMS National Military Strategy

NOE nap-of-the-earth

NPE network planning and engineering

OCR Operational Capability Requirement

ODCSCD Office of the Deputy Chief of Staff for Combat Developments

ODP Officer Distribution Plan

ODUSA(OR) Office of the Deputy Under Secretary of the Army for Operations Research

OMA Operation and Maintenance, Army

OML Order of Merit List

OOTW operations other than war

OPFOR Opposing Force

OPSEC Operations Security

OPTEC U.S. Army Operational Test and Evaluation Command

ORSA Operations Research and Systems Analyst

OV/VM Office Vision/Virtual Machine

PAM pamphlet

PAO public affairs officer

PAT Process Action Team

PCS Personal Communications System

PDA Personal Digital Assistance

PEO Program Executive Officer

PERSCOM U.S. Army Personnel Command

PIR priority intelligence requirements

PM Program Manager

POC point of contact

POI program(s) of instruction

POM program objective memorandum

PPBES Planning, Program, Budgeting, and Execution System

PPSB Power Projection and Sustaining Base

PSS Personnel Service Support

RC Reserve Components

RD Research and Development

RDEC Research, Development, and Engineering Center

RDTE research, development, test and evaluation

REMAB remote marshaling base

RIMS Research and Development Information Management System

RISTA reconnaissance, intelligence, surveillance, and target acquisition

RODP Roll-Off Discharge Platform

RSTA reconnaissance, surveillance and tactical acquisition

SAMS School of Advanced Military Studies

SAR search and rescue

SASO stability and support operations

SATCOM Satellite Communications

SIC2 signal command and control

SIGSEC signals security

SITREP situation report

SME Subject Matter Expert

S/O smoke and obscurant

SOF Special Operation Forces

SOP standing operating procedure

SOR Senior Officer review

ss3 Sea State 3

SSDC Space and Strategic Defense Command

ST Science and Technology

STAMIS Standard Army Management and Information System

STO Science and Technology Objective

TAA total army analysis

TADSS training aids, devices, simulators, and simulation

TBG TRADOC Budget Guidance

TBM tactical ballistic missile

TDA table of distribution and allowances

TDAD Training Development and Analysis Directorate

TECO Test and Evaluation Coordination Officer

TM Threat Manager

TMDE test, measurement, and diagnostic equipment

TOC tactical operations center

TOE tables of organization and equipment

TRADOC United States Army Training and Doctrine Command

TSARC Test Schedule and Review Committee

TTP tactics, techniques, and procedures

TWV tactical wheeled vehicle

UAV Unmanned Aerial Vehicle

UMT Unit Ministry Team

USPACOM United States Pacific Command

UXO unexploded ordnance

VR virtual reality

VTC Video Teleconference Center

WAN wide area network

WFLA War Fighting Lens Analysis

WIN Warfighter Information Network

WMD weapons of mass destruction

Section II

Terms

Battle command

The art of decision making, leading, and motivating soldiers and their organizations into action missions; includes visualizing current state and future state, then formulating concepts of operations to get from one to another at least cost; also, includes assigning missions, prioritizing and allocating resources, selecting the critical time and place to act, and knowing how and when to make adjustments during the fight.

Battle dynamics

Five major interrelated dynamics that define significant areas of change from current operations to Force XXI Operations; dynamics are Battle Command, Battle Space, Depth and Simultaneous Attack, Early Entry, Lethality and Survivability, and Combat Service Support.

Battle space

Components of this space are determined by the maximum capabilities of friendly and enemy forces to acquire and dominate each other by fires and maneuver and in the electromagnetic spectrum.

Combat service support

The essential logistics functions, activities, and tasks, necessary to sustain all elements of an operating force in an area of operations.

Command and control warfare

The integrated use of operations security, military deception, psychological operations, electronic warfare, and physical destruction manually supported by intelligence to deny information to, to influence, or to degrade adversary command and control capabilities while protecting friendly command and control capabilities against such actions; command and control warfare applies across the full range of military operations and all levels of war.

Depth and simultaneous attack

The simultaneous application of combat power against an enemy throughout the depth and breadth of the battlefield; objective goes beyond defeating the enemy; objective is to accelerate enemy defeat.

Early entry operations

Operations involving the initial deploying forces, they occur whenever the missions require the projection of U.S. forces from the continental United States or else where.

Operations other than war

Military activities during peacetime and conflict that do not necessarily involve armed clashes between two organized forces.

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